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Textile World

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Forecasting—and Hastening—Peaks

TEXTILE activity should reach its two-year cyclical peak in 1931; general business will reach its next cyclical peak in 1932; the textile peak this year will not be a really high peak because it will not be concurrent with the next expected peak of general business activity.

Furthermore, the 1932 peak in general business is not expected to be a high one such as occurred in 1923 or 1929; the next high peak is expected to occur in 1935. The textile industry will probably have a peak again in 1933—and the 1935 textile peak, concurrent with the expected general business peak, should be a very high one.

These are the conclusions drawn from a study of the cycles of general business and textile activity since the war, made by the Tubize-Chatillon Corp.

▼

Insofar as it is possible to go by precedent — and a precedent limited to the period from 1919 on — the findings seem to be logical. In fact they agree closely with opinions expressed by Dr. Lewis H. Haney, editor of the Textile World *Analyst*. Several times during the last two years, he has made the point that the textile industries show a two-year cycle. He has also made the point that the upturn in textile production this year has been limited by the fact that it is bucking the general trend of business. He certainly is in complete agreement with the conclusion that the next business peak will not be high.

He points out, of course, the danger of pushing this reasoning into the future. Business cycles, he emphasizes, have a way of being different from one another. As an example, he cites the fact that there was no peak in general business in any of the years 1874, 1875, 1876, and 1877, and not much of a recovery even in 1878.

Nevertheless, Dr. Haney feels that the Tubize-Chatillon prediction is at least in accord with the precedent of last 11 years.

▼

We have a tremendous respect for—and, in fact, envy of—the technique of economists. We recognize the tremendous contribution they have made to the substitution of intelligent planning for blind action.

Nevertheless we must admit that we have never become a completely ardent devotee of the business cycle—despite the fact that most of the charts flashed before our eyes seem to reflect fairly uniform combination of action and reaction over a long period.

Our lack of profound worship is based upon our belief that cycles recur in a fairly constant manner, not because they are preordained and necessary but because human inertia permits their recurrence. In the face of this inertia, admittedly the dominant trait of mankind, the relatively insignificant amount of initiative and original thought produced by each generation has little effect, and does not show on charts.

Consequently, even though we are willing to admit that the Tubize-Chatillon prediction will probably prove to be a sound one, we still cling to the belief that a bull market in textile initiative might hasten and heighten the next peak. That is why we enjoy reading Dr. Haney's articles because he rarely forecasts a probability, based upon statistical data, without indicating that something else might happen if textile manufacturers would only do so-and-so.

Nevertheless, we are not enough of a Pollyanna to be yet ready to sell National Inertia Pfd. short.

The Week in Textiles

as Reflected in This Issue

General

Cloth Analysis

Maximum settings for cloths in which ends exceed picks are analyzed and illustrated with actual experimental fabrics. The article is by T. Woodhouse and A. Brand. *(page 22)*

Ajax Employee Training Plan

Ajax Hosiery Mills are operating a well thought out plan of employee training. The plan was put into effect after a survey showed a high rate of labor turnover. Two years of trial have stamped a mark of approval on this plan. *(page 32)*

Cotton

"Old Ironsides" Uses 12,000 Yd.

The fact that nine weights of canvas have been used in outfitting "Old Ironsides" with sails makes the revamping of old frigate a textile story. *(page 21)*

Fair Trade Practices

Representatives of buyers and sellers have put their heads together and drawn up a useful and much-needed declaration of sound trade practices for transactions in cotton gray goods between mills and converters. *(page 29)*

Roving Frame

Complete overhauling of the roving frame is essential if highest productive efficiency is to be obtained. Instructions for putting this equipment in first-class condition are detailed. *(page 30)*

Night Work Curtailment in South

In 97½% of the mills subscribing to the Cotton-Textile Institute's plan for elimination of women and children from night work, the plan is in active operation, according to statement authorized by the institute. Government figures on active spindles show curtailment of night work in the South. *(page 34)*

Progress in Cotton-Wrapped Bales

Progress is reported in the move to wrap cotton bales in cotton cloth. Many mills are willing to pay for 7 lb. more cotton per bale to compensate for difference in tare weight. *(page 35)*

Typewriter Ribbons

Little, if any, Sea Island cotton is finding its way into typewriter ribbons. Regular Egyptian and Sakellaridis are used to a great extent. *(page 44)*

Raw Material Moves Downward

Raw cotton reacted this week following news of Germany's financial difficulties until pivotal months were back to within about ½c. of the year's lows scored early in June. *(page 50)*

Goods Quiet But Uncertain

Cotton goods were quiet this week as the raw material weakened and international problems checked the growth of confidence among buyers. Second-hand sellers broke prices in gray goods. First hands followed slowly. *(page 53)*

Wool

Intersecting Gill Boxes

Better knowledge of its advantages has increased the popularity of the intersecting gill box, and prominent American worsted mills spinning on the Bradford system have adopted its use. *(page 26)*

Tape Condenser

Announcement is made of a new tape condenser of the deep-groove type. Refinements in the machine and advantages of this type of condenser are outlined. *(page 42)*

Bottom Passed?

Feeling very general in wool market that bottom has been passed. Sales, while not continuing active rate established two weeks ago, are satisfactory and prices are firm at levels 5 to 7% above lows. *(page 51)*

Wool Market Confident

Encouraging optimism is evident in wool as prices are firmly held and a certain amount of steady business continues. Trading was quieter than for last two weeks, but confidence remains. *(page 51)*

Yarns Are Firm

Worsted yarns were firm this week reflecting strength in the raw material and steady interest among buyers. *(page 51)*

Produce Staples—if You Must!

Possibility of a surplus in wool goods next month due to heavy production causes observers to urge that mills, if they must operate at capacity, restrict production to oxfords and other staples. *(page 53)*

Knitting

Astrakhan Manufacture

Specific details are supplied as to the cut of the backing wheel, the yarns to be used, and the width of the cylinder in knitting astrakhan. *(page 44)*

Knitting Half Hose

Causes for variation in length of half hose are outlined and remedies suggested. *(page 45)*

The Textile Outlook

MERCHANTS turned their attention across the Atlantic early this week in an effort to analyse what ill effects, if any, the banking crisis in Germany may have on American textile trade. Though the situation delays the return of confidence among buyers, the feeling is general that some workable plan will be forthcoming which will cushion the shock of Germany's financial crash. Possibility that repercussions may cause trouble in unexpected places makes for caution until the outcome is seen more clearly. If the afflicted areas are restricted, the growing absorption of textiles by the American market due to bargain prices must before long result in a return of the activity seen at the close of June. . . . Cottons have become quieter in face of a raw material decline to within ½c. of the season's low point, and there is unwillingness to cut prices. Wool goods retain their excellent outlook for the immediate future, but expanding production endangers the longer future. Raw silk is too high relatively to attract support. Knit goods are steady though buyers' caution will continue to produce a market which is a series of spurts and set-backs.

Swim-suit Call Wanes

Demand for bathing-suits which has given mills the longest, though not the most profitable, season, is on the decline, and manufacturers expect the season to end in ten days. *(page 54)*

Mediums Versus Heavies

Prolonged indifference by distributors to heavyweight underwear this year is ascribed to the growing call for medium-weight lines. *(page 54)*

What's Ahead for Mesh Hosiery?

A lessening in demand for low-priced mesh hosiery suggests that this may be only a seasonal vogue, and manufacturers are urged to watch output; quality lines face good winter. *(page 54)*

Silk

Barré-Effect in Crepe

Streaks in canton crepe are shown to be due to uneven filling yarn, and the weaver is not to blame. *(page 45)*

Silk Not Out of the Woods

The world statistical position of raw silk is improving but it is not good, says Dr. L. H. Haney in the TEXTILE WORLD Analyst. It is doubtful, he finds, whether silk can hold above $2.50, although at present new low prices seem improbable. *(page 47)*

Silk Drops—But Not Enough

A 5c. drop in 20/22 prices failed to break the deadlock in raw silk; manufacturers refuse to buy, because they expect a general recession. *(page 52)*

Spun Yarn Improves

Woolen and worsted mills are buying fair quantities of spun silk. Throwsters are in mid-summer lull, with demand negligible. *(page 52)*

Fabric Tone Stronger

Broadsilk tone is better, but weavers are hesitant about advancing prices. Pick-up in demand expected to bring general rise. *(page 53)*

THE WHITE HOUSE
WASHINGTON

July 6, 1931.

My dear Mr. Woolf:

I have noted that the 1930 medal of the Associated Business Papers has been awarded to the Textile World for outstanding editorial service. This in itself is gratifying, but even more so is the contribution which you have made thereby to promoting the soundness and efficient functioning of the textile industry, which is such an important factor in the nation's business. I should like to congratulate you on the recognition which has come to your publication.

Yours faithfully,

Herbert Hoover

Mr. Douglas G. Woolf,
Editor,
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Rayon

Linings Go Acetate!

The current strong demand for cellulose acetate fabrics as quality linings for men's wear, follows years of laboratory and promotional work. *(page 18)*

Twisting

Methods of twisting together rayon and worsted yarns for use in full-fashioned hosiery knitting are discussed. The method of producing a ratine effect is outlined. *(page 44)*

Between Two Fires

Rayon producers are uncertain which policy to choose: they fear to increase output, as it might weaken their present favorable inventory position; and they fear they will lose business in fall unless they do! *(page 52)*

The Business Outlook

WHIRLWINDS of worried words from financial and political storm centers of Europe sweeping across front pages and swirling through world securities markets have obscured the slight signs of strengthening in basic business indicators in these self-sufficient States during the last two weeks. In face of frightening foreign financial news and the full force of summer slackness, our index has recovered from its slight slump at the end of June to a level in line with the average of the last six months. Concealed currents of deferred demand in consumer industries are undoubtedly sustaining and stimulating domestic business despite foreign difficulties. Steadiness of domestic securities in the home market is another encouraging sign of resistance of American psychology to panic possibilities, and passing of the damn-fool stage of this depression. Record low wheat prices are largely a reflection of political factors interfering with normal market forces. Uncontrolled commodities continue to fluctuate around June levels. When deflation drives debtors to default, creditors get moratorium minded and expansion is inevitable.—*The Business Week.*

Processing

Vat Dyeing Control

Accurate control of hydrosulfite vats is made possible by means of a simple test which discloses the total reducing power of the bath. *(page 20)*

Printing-Machine Gear System

Elimination of the handling of star gears, which have to be changed to suit the various sizes of printing rolls, has been made possible by new gearing for textile printing machines. *(page 42)*

Uneven Shade in Dyed Fabric

Streakiness is not always caused by uneven dyeing, but is often due to irregularity in the fabric itself. In a knitted fabric this may result from either uneven yarn or unequal tension during the knitting operation. *(page 44)*

Five Acetate Producers Watch Linings Market

By John Black

Assistant Editor, TEXTILE WORLD

THE sudden dramatic increase in demand for cellulose acetate yarn for the manufacture of high-quality linings, is one of the features of the year in the synthetic yarn industry. Although seemingly an overnight proposition, this development is the outcome of years of laboratory and promotional work by acetate producers. Steadily, month by month, lining manufacturers were being won over to recognition of acetate's possibilities and advantages, until finally the issue became one of getting into quality linings. During the last few weeks, several outstanding manufacturers including makers of men's standard brand suits and standard brand linings, came out with advertising broadsides exploiting the fact that they were using acetate yarn for these fabrics.

The Acetate Producers

To gauge the true significance of the acetate lining vogue, and its prospects, we must review the current situation in acetate yarn production. There are now five companies in this field: Celanese Corp. of America, DuPont Rayon Co., Viscose Co., Tubize Chatillon Corp., and the Tennessee-Eastman Corp. All are companies of substantial resources. While their status as acetate yarn producers varies greatly—some are scarcely more than nominal entries as yet—all are accelerating their output rapidly, and the end of this year will find production well ahead of current figures. In the consumer's mind, the Celanese Corp. comes outstandingly first, of course, having the asset of an established accepted name; DuPont and Tubize Chatillon also are making spirited drives to expand their acetate business. Simultaneous with the news that this yarn had won its way into men's high quality suit linings, supplanting alpaca with more than one important garment house, came the formal offering by the Viscose Co. of its first acetate yarn, "Seraceta."

The question arises: What are the potentialities of the linings market for acetate, and how much can producers rely on this outlet to consume their constantly increasing output? Managers of the acetate division of the chief companies are confident of a steady growth of acetate consumption in linings, and to a degree the situation seems to justify such confidence. Demand by linings manufacturers for acetate yarn has gone ahead in big jumps since the beginning of the year.

Market for Men's Linings

The linings market for acetate includes numerous divisions, many of which have not yet been touched. Men's suits, of course, are a volume proposition, and this is a major outlet at present; but there are many others, notably men's overcoats, women's suits and coats, and hat and cap linings. The trend is decidedly toward the quality market, and producers hope soon to sell acetate extensively for men's formal wear linings, such as tuxedos, etc. Some regard this as important, in view of the prestige such would carry, but other firms are less interested, due to the limited market.

As regards future prospects let us quote one sales manager:

"The future of acetate yarn in linings," he says, "will depend on how the high-priced linings made of this yarn wear. These linings now are being tested by actual consumers who have bought good quality clothes lined with acetate fabrics, and the reaction of these customers will determine the outlook."

This is the first full season of quality linings made of acetate, and it is still too early to gauge consumer response. However, the producers feel strongly that these fabrics will give satisfaction, pointing out that they have been used in the medium-priced market for several years.

Acetate is used in varying quantities in different lining constructions. Some producers contend that fabrics made of acetate and viscose yarns combined give the most satisfaction in wearability. Acetate warp and viscose filling is a popular mixture for fabrics used in the body of a garment. All-acetate is particularly good for sleeve linings, as it has a soft hand, permitting the arm to slip easily into the sleeve; also it has great resistance to moisture, such as perspiration. Some favored synthetic fabrics used for linings are 3-leaf twill and 4-leaf twill; in the more expensive garments herringbone is popular; stripe effects also are important.

Despite the recent growth, acetate is far from having a monopoly of the linings market; other synthetics sell well in this field. All-viscose makes an attractive taffeta, at low price, and satins with rayon warp and cotton filling are another popular line. Fabrics having alpaca effects, and made with cotton warp and acetate filling, sell steadily to the medium-priced trade.

However, in the better quality field, all-acetate is decidedly a leader; the standard grade linings now going into the higher-priced garments are made with acetate warp and viscose filling.

A Challenge to Other Fibers

Acetate's popularity for linings presents a challenge to both silk and alpaca. The cheaper grades of silk have been favored for linings for years, and this end of the silk fabric market now is feeling the new competition. Alpaca had a particularly strong hold as a lining fabric, due to its rugged and reliable wearing

Linings of synthetic yarns are winning popularity in men's clothing. The feel to the hand and appearance to the eye are useful selling points for the retailer. Repeat business from the consumer for the suits and from the clothing manufacturer for the goods will hinge on wearing quality.

qualities; the attractive appearance of the better grades of acetate lining, however, is cited by some as the reason for the recent turn to the latter type by several manufacturers of men's suits.

Quick to see the importance of the trend, leading alpaca manufacturers are turning to the production of acetate linings. Acetate finds a stronger competitor in alpaca than in silk due partly to the long established reputation of alpaca in this field, and partly to the fact that some grades of silk do not wear so well as the synthetic. It is a striking commentary that the demand for all-acetate linings continues to grow, despite the fact that this fabric is more expensive than weighted silks.

In the manufacture of high grade acetate linings, dyeing is an important point. Yarn producers had difficulty at that end for a time, but today the problem is pretty well solved. Leading dyeing houses are able to meet the most exacting demands of the men's suit manufacturers, in providing linings that exactly match the suit fabrics.

Development of the acetate market brings up a vital question: What percentage of yarn content should determine the identity of a fabric? This question is particularly pertinent at this time, as numerous lining manufacturers are exploiting the acetate linings vogue to produce great quantities of fabric at a low price, using the minimum of standard brand acetate yarns but calling their fabrics by the names of these yarns. This question has been carefully studied by the Celanese Corp., and that company exercises vigilant watch over the use of its name. Celanese policy is to allow the term all-Celanese only for 100% fabrics; all other fabrics must specify "part Celanese."

A Future of Good Promise

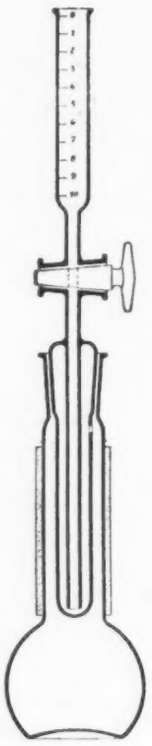
The immediate future of acetate, both in linings and elsewhere offers much promise. The yarn has had some difficulty in the circular knit field due to its high price, but of late a trade-up trend in this branch has stimulated acetate demand. Tricot and Milanese represent an important market which is growing. Half-hose and underwear both are expanding outlets, especially half-hose, for which market new low prices have been quoted on certain acetate numbers. Aceate's position in satins and other dress goods fabrics is too well established to need reiteration here.

It is in the quality field, however, that acetate's real future lies. The distinctive beauty, the drapability, and the facility for color of acetate fabrics are already accepted by an important part of the consuming public. Acetate yarn prices are steady; the leading producing companies are selling their full output, and they look for a continued active movement.

Simple Test Enables Accurate Control of Vat Dyeing *Process*

By Justin Hausner

IN DYEING with vat dyestuffs it is important that the vat should always have a suitable content of hydrosulfite; and in order to avoid precipitation of the dyestuff during the dyeing process it has been customary to use an excess of hydrosulfite. The obvious disadvantages of this procedure have given rise to the use of indanthrene yellow paper, and various titration methods which are intended to aid in controlling the conditions of the vat. It is recognized, however, that all of the tests proposed heretofore have serious drawbacks which lessen their value to the dyer.



Apparatus for determining reducing power of hydrosulfite vats

Lack of a simple method, sufficiently accurate for practical purposes, caused the writer to work out a procedure which indicates the total reducing value of the vat. That is, the new method ascertains not only the free hydrosulfite contained in the vat, but the total reducing power of the leuco compound of the dye and the excess hydrosulfite present in the bath.

This procedure is based on the absorption of atmospheric oxygen by the hydrosulfite contained in the vat and the leuco compound of the dyestuff. The decrease in volume caused by absorption is determined by a water column and is the measure for the reducing value of the vat. Since the test shows the total reducing value of the bath, presence of other substances, such as caustic soda, sodium sulfite, and sodium sulfide, which absorb carbonic acid or oxygen, does not affect the result. If, however, the vat to be tested contains glucose, higher values will be obtained than when hydrosulfite alone is present, because the glucose slowly consumes oxygen during the test. The figures obtained in the case of glucose vats, however, give the dyer a basis of comparison for determining the condition of the bath.

The method is not suitable for use in testing vat printing pastes for the content of sulfoxylate-formaldehyde (Rongalite), as formaldehyde-hydrosulfite compounds are oxidized too slowly by atmospheric oxygen.

The apparatus employed in making the test is shown in the accompanying illustration. It consists of two parts: a glass flask, the neck of which is surrounded by a cork sheet to eliminate the effect of the heat of the hand; and a scale tube with petcock attached by fusion, to which is joined an ampul. The ampul has a very small hole below the widening of the ground part for equalizing the pressure; and a small tube runs from the petcock to the bottom of the ampul.

A pipet with rubber sleeve is provided for drawing and cooling the sample and transferring it to the flask. The complete apparatus, known as the Vatometer, can be obtained from the Chemischen Fabrik Pyrgos, Radebeul, Dresden, and from the Activin Corp., New York.

In making the test, a few drops of a foam agent are first placed in the flask, and then by means of the pipet 10 c.c. of the dye vat is taken from the bath at a distance of about 10 cm. below the surface of the liquid. Warm vats are cooled to room temperature by holding the pipet in running water. The volume is adjusted to the 10-c.c. mark after the cooling, and the sample is run into the flask, with the tip of the pipet touching the bottom of the flask in order to prevent the vat coming too much in contact with the air during the filling. The scale tube and ampul are inserted in the neck of the flask, and the apparatus, which is held with the left hand on the cork grip, is placed in a vessel containing water. At the same time, the petcock is opened with the right hand, and the scale tube is filled to the zero mark with water. The petcock is then closed, and the apparatus is shaken in the direction of the longitudinal axis, the forefinger being held on the petcock so that the scale tube and ampul will not be flung out of the flask during the shaking.

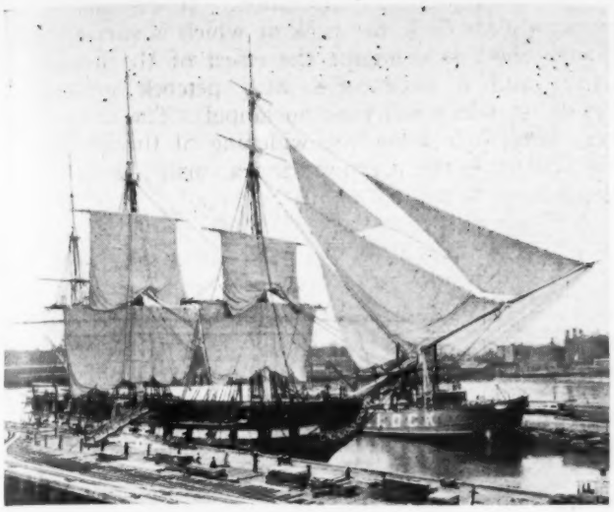
During the shaking, the vat will be oxidized by the atmospheric oxygen contained in the flask, oxidation being accelerated greatly by the foam which forms during the shaking. Complete oxidation of the vat can be detected by the precipitation of the dyestuff or by the color turning point. When oxidation is complete the apparatus is held as above described in the vessel of water, the scale tube is again filled to the zero mark with water, and the petcock is opened. By means of the resulting vacuum, water will be sucked from the scale tube into the ampul, and the water column will suddenly remain stationary. The value corresponding to this point is read off on the scale and represents the total reducing value of the vat.

The scale indicates grams of hydrosulfite per liter, and has a graduation up to 10 grams, each graduation line indicating a full gram. A subdivision of the scale is not provided, as this would not correspond to the accuracy of the method. In the case of vats of small reducing power, in which the error percentage would be too great with a 10-c.c. sample, a multiple, such as 30 or 50 c.c. is taken and the result obtained is divided by the corresponding factor; for example, 3 or 5.

Although this determination of the reducing value of dye vats is a gas-analytic method, it is not necessary to correct the results for temperature and pressure, as the error occurring through not taking into account these factors falls within the accuracy limits of the method.

The values found by this method are in many cases smaller than correspond to the quantity of hydrosulfite used for the preparation of a vat. This is due to the fact that the hydrosulfite used was not of full strength and that a part of its reducing power was used up by atmospheric oxygen dissolved in the water and by surface oxidation in preparing the vat.

The author wishes to express his gratitude to Dr. Feibelmann for assistance in working out this method.



"Old Ironsides"

Gets New Sails

SAILS, sail-makers, sailors and sailing made the front page of many daily papers when the reconstructed frigate Constitution, "Old Ironsides," put out from Boston early this month for an exhibition cruise. She put to sea in tow of a steam vessel, and then the argument started as to whether she could be sailed, whether a sail-wise crew could be mustered and in fact whether she had sails at all—though pictures soon settled the last point.

Interesting facts about the marine use of canvas which the discussion brought out and the fact that a prominent cotton goods house played an important part in dressing the masts of "Old Ironsides" are responsible for bringing this story into the columns of TEXTILE WORLD.

It will be recalled that the reconstruction of the 134-year-old vessel was made possible by the donations of school children the country over. Fabric for her sails, however, was the donation of Wellington, Sears & Co., Boston and New York, acting for the West Point (Ga.) Mfg. Co., where the canvas was manufactured. Nine different weights of canvas were used, totaling a little over 12,500 yards. The table given herewith, showing the distribution of these various weights over the ship's suit of sails and the yardage of each used, is supplied by Wellington, Sears & Co.

"Sentiment for the earlier associations of our company prompted us to see that 'Old Ironsides' did not lack for sails," said H. L. Bailey, president of Wellington, Sears & Co.

This company has been prominent in its field since it was founded as N. Boynton & Co., over 100 years ago in Boston, and it has expanded from this small beginning to comprise 18 associate companies with wide diversity of products. It is the impression of Wellington-Sears executives that the Boynton company doubtless supplied the canvas for the Constitution in its fighting days, though records which would confirm this have been lost in the passage of years. The position of the Boynton company in its day makes the assumption logical.

"Old Ironsides" has written some of the most colorful chapters in American maritime annals. Launched Oct. 21, 1797, her first victories were made as flagship to the Mediterranean fleet during the blockade of Tripoli where she dealt a decisive blow to piracy. During the war of 1812 she delivered a final blow to the British naval campaign when she defeated the frigate Guerriere. Before the war ended, she scored some 19 additional victories. Following the war of 1812 she made a good-will tour, circumnavigating the globe in 495 days.

Among the ports which are to be visited by this most famous ship in American maritime annals are: Bar Harbor and Portland, Me.; Providence and Newport, R. I.; New York; Newark, N. J.; Wilmington, Del.; Philadelphia, Pa.; Newport News, Norfolk, and Yorktown, Va., and others.

"Old Ironsides" with her sails set is a spectacular reminder of the early days in the cotton industry. Today cotton sails the high seas on giant ocean liners instead of picturesque square riggers, and contrary to popular belief, far greater quantities are used than ever in the old days. The modern liner uses some 15,000 sq.yd. of duck for various purposes—deck coverings, awnings, life boats, equipment and flue covers, and the battleship up to 20,000 sq.yd., while the old sailing ship consumed an average of 12,000 sq.yd. for sails.

Founded in the days of clipper ships, brigantines and sailing men-of-war, Wellington, Sears & Co. have seen more than a century of service in the marine field. Since then they have been purveyors of Oceanic duck for an increasing diversity of uses, including railroads and agriculture. In 1913 the company supplied the duck for the first two battleships built in the United States for the Argentine Republic—the Morino and the Rivadavia. The duck, which was used for life boat coverings and sails, deck coverings, awnings, windshields, etc., represented the largest single order received up to that time. Both the Eleanor Bolling and the City of New York, flagship of the Byrd Antarctic Expedition were completely equipped with Oceanic duck when they left on their 32,000-mile voyage to the Antarctic Circle.

●

Number of Yards of 22-In. Cotton Canvas Required in a Complete Suit of Sails for the U. S. Frigate Constitution

	Number or Weight of Canvas								
	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9
Flying jib	...	...	...	...	140	32	...	...	...
Jib	...	...	241	40	...	...	...	...	...
Fore topgal't. stays'l	...	...	...	105	30	...	...	...	...
Fore topmast stays'l	...	378	57	...	...	...	...	...	...
Foresail	519	114	...	...	...	...	...	...	...
Fore topsail	550	189	...	...	...	...	...	...	...
Fore topgallant	...	...	...	...	265	83	...	...	...
Fore royal	...	...	...	...	...	...	...	176	...
Fore trysail	...	408	74	...	...	...	...	...	...
Mainsail	...	734	108	...	...	...	...	...	...
Main topsail	753	187	...	...	...	...	...	...	...
Main topgallant	...	...	...	...	295	106	...	...	...
Main royal	...	...	...	...	...	...	...	171	...
Main topmast stays'l	...	...	...	...	...	...	304	30	...
Main topgallant stays'l	...	...	...	...	...	...	...	269	...
Main royal stays'l	...	...	...	...	...	...	...	...	200
Main trysail	...	257	34	...	...	...	...	...	...
Mizzen topsail	...	...	432	142	...	...	...	...	...
Mizzen topgallant	...	...	...	...	...	142	53	...	...
Mizzen royal	...	...	...	...	...	...	...	98	...
Mizzen topmast stays'l	...	...	...	...	...	...	131	18	...
Mizzen topgallant stays'l	...	...	...	...	...	...	...	137	...
Spanker	...	426	78	...	...	...	...	...	...
Mizzen gaff tops'l	...	...	...	...	...	...	308	37	...
Fore studding sail	...	...	...	...	...	...	718	54	...
Fore topmast studding	...	...	...	...	...	...	486	46	...
Fore topgallant studding	...	...	...	...	...	...	...	280	...
Main studding sail	...	...	...	...	...	...	768	60	...
Main topmast studding	...	...	...	...	...	...	704	60	...
Main topgallant studding	...	...	...	...	...	...	...	394	...
Total number of yards	1812	2693	1024	287	730	363	3472	1930	200

Grand total ..... 12,511 yd

Maximum Settings *for Cloths in Which Ends Exceed Picks*

By T. Woodhouse and A. Brand

◆ *As the final step in their ingenious investigation into the fundamentals of cloth analysis and synthesis,* Messrs. Woodhouse and Brand have experimented with fabrics in which the warp ends per inch greatly exceed the filling picks per inch. In this concluding article they describe carefully an interesting method by which there may be inserted in a fabric a larger number of warp threads than is normally possible.*

AT a subsequent period further experiments were carried out with a view to confirming the results already obtained and at the same time to attempt to find the corresponding values for fabrics with approximately twice as many threads per inch as the number of picks per inch. The results of the later experiments are exhibited in Fig. 38, in which the bottom cloth *T*, made from 4/4-lb.-per-spyndle yarn (equivalent to 16-lb.-per-spyndle single yarn) contains 30 threads per inch of warp and 13 picks per inch of filling —a little more than was obtained in the case of the 15-porter cloth in Fig. 37 (TEXTILE WORLD, March 28, page 41). As in the case of the 11-, 12-, 13-, and 14-porter cloths illustrated in Fig. 37, the cloth width of the pattern *T* in Fig. 38 is approximately equal to the width of the warp in the reed (see Table XV).

*Early articles covering this investigation were summarized on page 38 of the March 28 issue of TEXTILE WORLD.

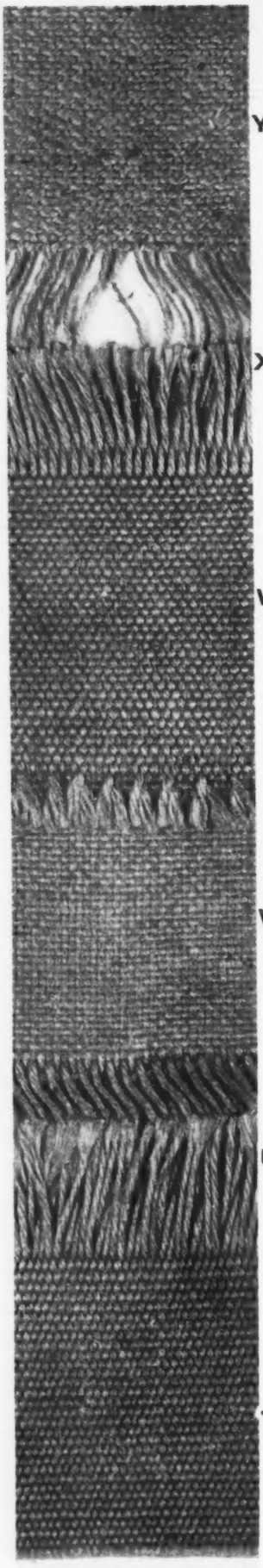


Fig. 38. Jute fabrics woven experimentally

Fabric Differences

After the maximum three-layer fabric *T*, Fig. 38, had been woven as above described, two threads were dropped from each dent or split of the reed, thus reducing the number of threads per inch to 15. This reduction is shown by the warp threads opposite *U*, Fig. 38. Cloth *V*, Fig. 38, is a well-made plain cloth of nearly maximum structure and contains 15 threads per inch and 17 picks per inch.

On the completion of pattern *V*, Fig. 38, one-half of the threads that were discarded at *U* were re-entered in the reed to form a third cloth *W*, containing 22½ threads per inch, 3 threads per dent, and 15 picks per inch. The fabric *W* is a heavy plain cloth, but is obviously not so heavy as the fabric *T*, although it contains 2 picks per inch more than the latter fabric.

Finally, two threads i neach dent of the reed were cut out so as to reduce the number of threads in the reed to one in each dent; i.e., 7½ threads per inch. This reduction is indicated by the fringe at *X*, Fig. 38. In the attempt to produce a three-layer fabric with maximum filling, as at *Y*, Fig. 38, the filling was found to be too stiff for the hand loom in which the experimental fabrics were being woven, and it will be seen that the cloth *Y* has only 18 picks per inch.

Shrinkage Interesting

Apart from the efforts made to throw light upon the practical production of maximum cloths, the examples illustrated in Fig. 38 are interesting from the point of view of the shrinkage that takes place in different structures from reed width to cloth width. This will be seen from the particulars collected and recorded in Table XV, which contains the chief weaving particulars of the four fabrics in question.

Procedure Followed

Because of the large number of threads per inch in the fabric at the beginning of the experiments illustrated in Fig. 38, it was naturally essential that four harnesses should be utilized. When plain cloth is woven with four harnesses, the draft almost invariably employed is that known in many districts as the "skip-shaft" draft, two repeats of which appear in Fig. 39. The short, thick vertical lines represent the wires of the reed. The brackets at the right-hand side indicate

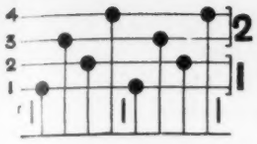


Fig. 39. Two repeats of skip draft

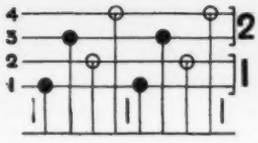


Fig. 40. Third and fourth threads dropped

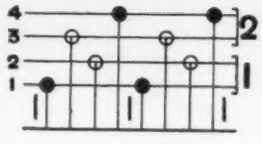


Fig. 41. Second and third threads dropped

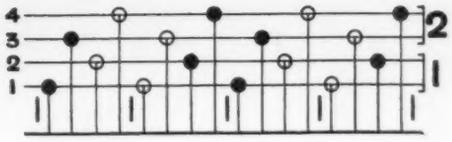


Fig. 42. The preferred method

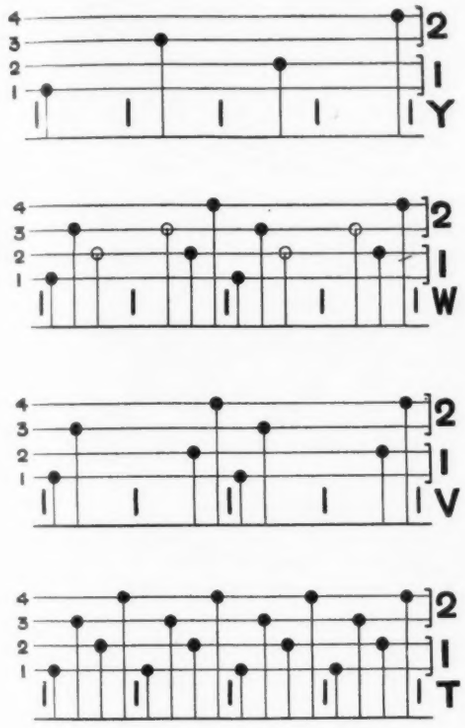


Fig. 43. Drafts for Fig. 38

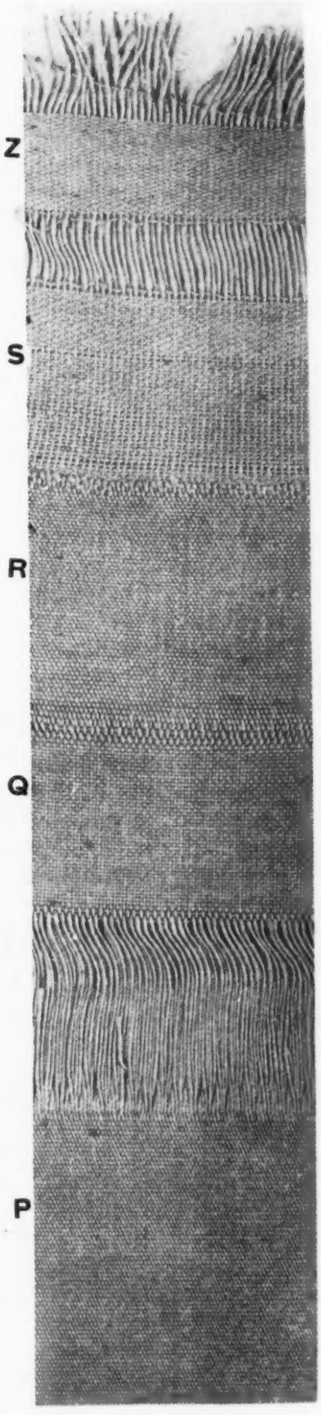


Fig. 44. Cotton fabrics woven experimentally

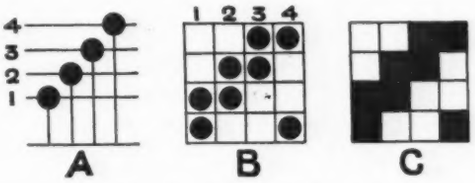


Fig. 45. Straight right-hand twill

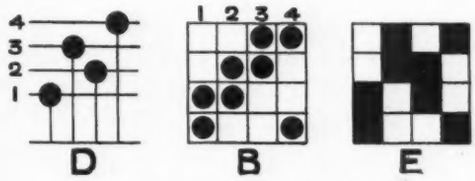


Fig. 46. Broken twill

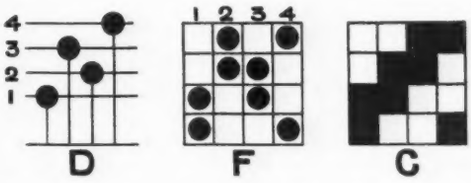


Fig. 47. Same result as Fig. 45

that the front two harnesses are tied together to work as one, and that the back two harnesses are similarly dealt with.

With this arrangement of drafting, there are a few different ways in which two threads may be dropped from each dent of the reed, as was done between cloths *T* and *V* in Fig. 38; and three of these ways are shown in Figs. 40, 41, and 42. The solid black circles represent threads drawn in the harnesses and reed, whereas the open circles represent the threads that have been discarded.

One defect of the adoption of either of the two methods illustrated in Figs. 40 and 41 is that, after half the threads have been withdrawn from their heddles, all those retained in use are found to be passed through the heddles of two of the harnesses only. Nevertheless, this defect would prove negligible in practice. The chief defect of these two methods—Figs. 40 and 41—is their impracticability for the purposes of the experiment.

To fulfill all conditions, the dropping of two threads from each dent of the reed has to be performed as indicated in Fig. 42. The full scheme for the four fabrics appearing in Fig. 38 is illustrated in Fig. 43, where the diagrams of the drafts are lettered to correspond to the fabrics which the respective drafts are utilized to produce.

Experiments With Cotton

A series of experiments similar to those exhibited in Fig. 38 was made in the same loom, but with cotton yarns in place of the jute yarns, and the examples woven in this case are illustrated in Fig. 44. The yarn used was 3/24s cotton. According to the results found by considering the equivalent counts of cotton and jute, as well as the conditional densities of the yarns, the following formula was deduced for cotton yarn:

$$d = \frac{1}{32\sqrt{c}}$$

where d represents the working diameter of the yarn, and c represents the count. Hence, considering the 3/24s cotton as being equivalent to 8s single cotton, the working diameter of the yarn used is:

$$\frac{1}{32\sqrt{8}} = \frac{1}{90.496} \text{ or, say, } \frac{1}{90} \text{ in.}$$

The reciprocal of 1/90 is 90. Therefore a warp was made with 90 threads per inch of the 3/24s cotton, 6 in. wide in the reed 22½ dents per inch, with four threads in each dent. The first cloth woven from this warp is shown at *P*,

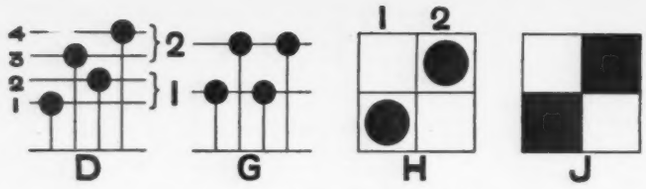


Fig. 48. Harnesses grouped

Fig. 44, and has 40 picks per inch. Under conditions noted later, it would probably be possible to insert 45 picks per inch, and so obtain a cloth in which the ratio of threads per inch to picks per inch is 2 to 1.

The remainder of the experiments then proceeded on lines parallel to those explained with reference to jute yarns in Fig. 38: On the completion of sample *P*, two threads from each dent were cut out, and a two-layer plain cloth woven at *Q*. This cloth has therefore 45 threads per inch and will be found to have 43 picks per inch. According to the formula deduced in a former section, if the working diameter of the yarn is 1/90 in., the number of threads and picks per inch should be as follows:—

$$\frac{\text{Reciprocal of working diameter}}{2} = \frac{90}{2} = 45 \text{ threads and picks per inch.}$$

This cloth therefore approaches the theoretical conditions very closely.

One-half of the threads dropped between samples *P* and *Q* were then re-entered into the reed so as to produce sample *R* with three threads per dent and 67½ threads per inch. Sample *R* is naturally a heavier fabric than sample *Q*. On the completion of pattern *R* the set of the warp was reduced to one thread per dent and 22½ threads per inch; and sample *S* was woven. During the production of this sample, it was found impossible to keep the selvage threads intact, even though only 44 picks were inserted per inch. To prevent the selvage threads from breaking so often, a strong catch-band was placed at each side of the warp about 1 in. distant from each selvage. This procedure enabled a further fabric to be woven, and resulted in the production of sample *Z*, which has 22½ threads per inch and 80 picks per inch.

The last-mentioned fabric thus approaches the condition in which the number of picks per inch is equal to the reciprocal of the working diameter of the yarn. It is likely that under more favorable conditions, and with special weaving arrangements, it would be possible to introduce 90 picks per inch in a warp containing 22½ threads per inch, and so obtain a maximum filling three-layer fabric, somewhat similar to fabric *P*, Fig. 44, so far as the two outer faces of the fabric are concerned. It will be noticed, however, that it is easier to introduce a number of threads equal to the reciprocal of the diameter of the yarn into a maximum three-layer warp-faced fabric than it is into a maximum three-layer filling-faced fabric, even when the number of threads per inch in the latter is much less than the number represented by half the reciprocal of the working diameter of yarn. This fact is emphasized in regard to the jute fabric *Y*, Table XV, as well as to the fabrics *S* and *Z* in Fig. 44. Table XVI gives full particulars of the five fabrics in Fig. 44.

Another object lesson in the shrinkage of fabrics is demonstrated in the above table as compared with that in Table XV. In the latter case, the maximum three-layer warp-faced jute fabric *T* has a cloth width very approximately equal to the reed width. The shrinkage measured is only 0.02 in. or, say, 0.31% of the reed width. In the present case, the corresponding cotton fabric *P* shrinks from 6 in. to 5.69 in., or 0.31 in., which is 5.17% of the original reed width.

It was decided to weave a three-layer warp-faced plain fabric in a power loom fitted up for the weaving of the common or serge twill, two-up-two-down. It will be apparent why this particular method was adopted for

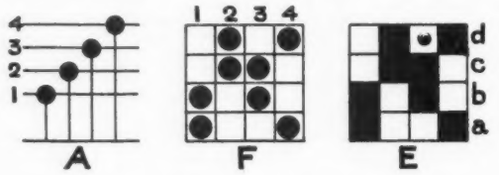


Fig. 49. Regrouping for comparison

purposes of the experiment in preference to more orthodox methods employing two or four harnesses and a plain-weave shedding cam with two blades.

When four harnesses are used with the so-called "skip-shaft" draft of 1, 3, 2, 4, Fig. 39, this draft is suitable for the weaving of both plain and twill fabrics. It permits the use of a simple top-roller arrangement, which, in conjunction with negative shedding cams, enables a firmly-woven cloth to be produced.

When the straight draft (1, 2, 3, 4) is employed, as indicated at *A*, Fig. 45, in conjunction with the weaving or cam plan *B* in the same figure, the cloth produced shows a straight right-hand twill as diagrammatically demonstrated by the unit weave *C*. If the same weaving plan *B* is used with the skip-shaft draft *D* (see Fig. 46), the cloth produced shows the four-thread broken twill or crepe weave, one unit of which is given at *E*. Again, if the skip-shaft draft *D* is maintained, and the weaving plan altered to *F*, Fig. 47, the cloth becomes similar to *C*, Fig. 45; i.e., a straight twill to right.

Now, if draft *D* is again employed, but this time harnesses one and two are tied together to act as one, and harnesses three and four are also tied together to act as another single harness, the arrangement would be as shown diagrammatically in Fig. 48, and the effective or resultant draft *G* is obviously that suitable for plain cloth. Hence, if the cam plan *H* is used in conjunction with the modified draft *G*, plain cloth will result as shown at *J*. Because four harnesses are employed in

Table XV

Pattern or Sample	Dents per Inch	Threads per Dent	Threads per Inch in Reed	Threads per Inch in Cloth	Picks per Inch	Total Number of Threads	Number of Double Selvage Threads	Reed Width (Inches)	Cloth Width (Inches)
T	7½	4	30	30.094	13	188	4	6.40	6.38
W	7½	3	22½	23.463	15	141	4	6.40	6.18
V	7½	2	15	18.048	17	94	4	6.40	5.43
Y	7½	1	7½	9.073	18	47	4	6.40	5.56

Table XVI

Pattern or Sample	Dents per Inch	Threads per Dent	Threads per Inch in Reed	Threads per Inch in Cloth	Picks per Inch	Total Number of Threads	Reed Width Inches	Cloth Width Inches
P	22½	4	90	94.903	40	540	6	5.69
Q	22½	2	45	52.023	43	270	6	5.19
R	22½	3	67½	74.449	40	405	6	5.44
S	22½	1	22½	28.067	44	135	6	4.81
Z	22½	1	22½	26.316	80	135	6	5.13

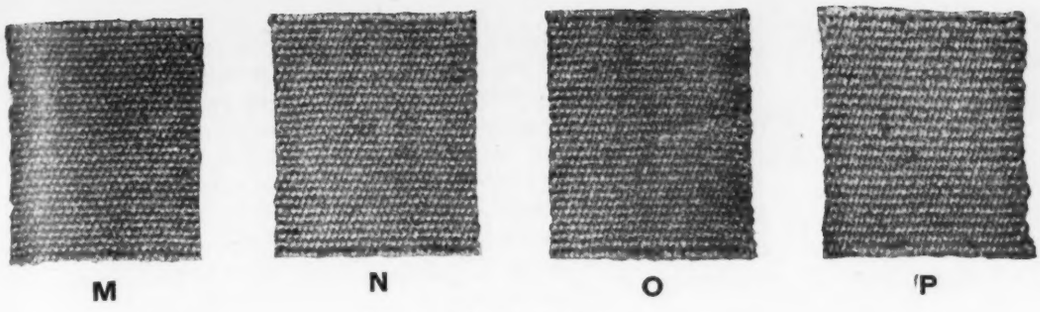


Fig. 51. Woven on power loom

two separate pairs, the heddle eyes (if knitted ones) will occupy altogether eight different planes.

As a last step in the argument, suppose that the cam plan *F*, Fig. 47, be used in conjunction with the straight draft *A*, Fig. 45. The cloth produced will evidently be identical with *E*, Fig. 46. These three items are reproduced in Fig. 49 for comparison with the foregoing. In weave *E*, Fig. 49, it is easily ascertained by inspection that if by any method no filling is inserted on picks *a* and *c*, the remaining two picks *b* and *d* would produce plain cloth—see the right-hand diagram in Fig. 50. In order to effect this in practice on an ordinary overpick loom, it is necessary to have the points of the two picking cams set to point in the same direction. There is therefore an effective pick and a blank pick from each side of the loom alternately and in succession.

This method of weaving plain cloth is often used in the production of the very heaviest types of plain jute carpeting. At first sight, the method appears to have one very obvious defect; namely, that the effective speed of the loom is exactly halved, since filling is inserted only on alternate movements of the picking arms. Curiously enough, however, it is quite usual to get a higher production. Moreover, the quality of the cloth produced by

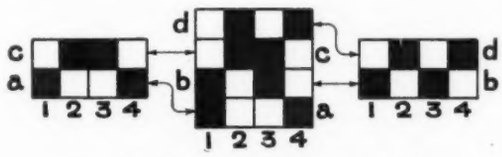


Fig. 50. To complete the explanation

the special method is invariably better than that woven in the ordinary plain loom, partly because of the double beat-up which is given to each pick of filling, and partly because of an advantage obtained in changing sheds.

When plain cloth is woven in the normal manner, all the warp threads change positions simultaneously, and one-half of these threads crosses the other half approximately in the center of the full shed. This procedure naturally incurs a maximum amount of friction in shedding. In the production of very heavy plain cloths, it is next to impossible to obtain a clean free shed when all the warp threads cross at the same time; and the chief reason for the adoption of the double-beat method is to eliminate the necessity for the warp threads changing positions simultaneously, as well as to secure the advantage of two beats to each pick of filling.

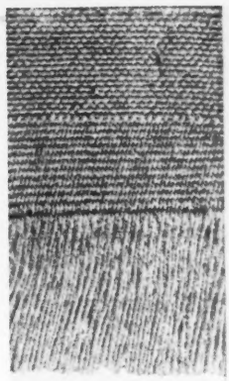


Fig. 52. Maximum warp setting

To explain matters a little further, it may be assumed that the shuttle is picked across the loom, as above described, on the pick *b* of the four-pick cam plan in Fig. 50. During the next revolution of the crankshaft, the shedding cam moves into position for the pick *c*, but no filling is inserted because the two pickers remain idle, and the reed beats up the filling inserted on pick *b* for a second time. Further, the movement of the shedding cam from the position for pick *b* to that for pick *c* involves the movement of only half the warp threads; viz., those controlled by harnesses 1 and 2. Hence, there is more space for the threads to pass each other than there would be if the threads on harnesses 3 and 4 were also changing at the same time.

During the following revolution of the crankshaft, the two picking points again act on the pickers and the shuttle travels back on pick *d*, Fig. 50, thus completing the plain weave. Pick *a* then follows, and this is a blank pick so far as the filling is concerned; but the reed beats up pick *d* for a second time, and half the warp threads change positions as before.

Four samples of cloth were woven in the power loom as thus arranged. These are illustrated in Fig. 51, and full particulars are appended in Table XVII.

Reference to the Table XVII and comparison with the previous corresponding table show that in the 12- and 14-porter fabrics 12 and 11 picks per inch were obtained respectively in the hand-loom-woven samples, and 13 and 12 picks per inch in the corresponding power-loom-woven fabrics. It was thus possible, by employing the special weaving methods above described, to introduce an extra pick per inch in each case.

More Threads per Inch

It has been previously stated in these articles that the number of threads per inch in a maximum warp-faced plain cloth is equal to the reciprocal of the yarn diameter. When the above-described special method of weaving is employed, however, at least 7% more threads per inch can be introduced, while there is actually 14% more in pattern *P*, Fig. 49, although in the latter case, it was found possible to insert only 10 picks per inch. It is evident, therefore, that when a maximum number of picks per inch is not an essential, the setting of the warp may be increased to 1.143 times the reciprocal of the diameter of the yarn. It is not stated absolutely that this number represents the true maximum, but the 16-porter cloth shown in Fig. 52 illustrates quite clearly that it would be extremely difficult to insert any more. The lower part of the fabric in (*continued on page 59*)

Table XVII

Pattern or Sample	Porter of Reed	Threads per Dent	Threads per Inch in Reed	Threads per Inch in Cloth	Reed Width	Cloth Width	Picks per Inch
M	12	4	29.95	29.99	15.42	15.40	13
N	14	4	30.27	30.02	13.21	13.32	12
O	15	4	32.43	31.94	12.33	12.52	11
P	16	4	34.59	34.03	11.56	11.75	10

Use of Intersecting Gill Box *Advantageous in Bradford System*

By John C. Lowe

◆ *"Invented in 1885, the intersecting gill box is not valued or used so extensively as it should be, due to a wrong conception of what constitutes a well-gilled end," writes the author of the accompanying article. Growing recognition of its advantages, however, is increasing its popularity; and several installations have recently been made by prominent American worsted mills spinning on the Bradford system.*

IN the manufacture of worsted yarns, the presence of short fibers at all stages and their efficient control present a problem of major importance. The percentage of short fibers below a certain length determines the minimum noil possible. The actual percentage of noil, however, is dependent upon the preparation of the wool previous to combing; that is, independent of careful settings at the comb, the noil may be excessive. After combing, the production and the maintenance of an intimate mixture of long and short fibers determine the evenness of the yarn. For combing, the ideal condition is reached when all fibers are straight and parallel. The closer we get to this ideal, the greater will be the tear from the comb.

Objects of Gilling

Naturally, gill boxes play an important part, for they are used both in the French and the English systems before and after combing, and also on the initial operations in worsted drawing. The objects in each case are the same: namely, (1) the straightening of the fibers, (2) blending, and (3) evenness by use of doublings. These objects are attained by the use of back rolls and front rolls between which the fallers, suitably located, operate. The back rolls control the entrance of the stock—the feeding—and also resist the action of the fallers.

The fallers—steel bars carrying pins projecting vertically—pierce the wool slivers and carry them slowly along to the front rolls. The surface movement of the fallers may equal or exceed sightly the surface speed of the back roll. The length and the size of the pin, the number of pins per inch, the set-over, and the total number of fallers in action are all controlled by quality, length, volume, and condition of the wool being gilled. The front rolls move more rapidly—at greater surface speed—than the fallers and draw the fibers quickly through the pins. The fibers so drawn are straightened. This is a very elementary description and explanation of what a gill box is, and what its functions are.

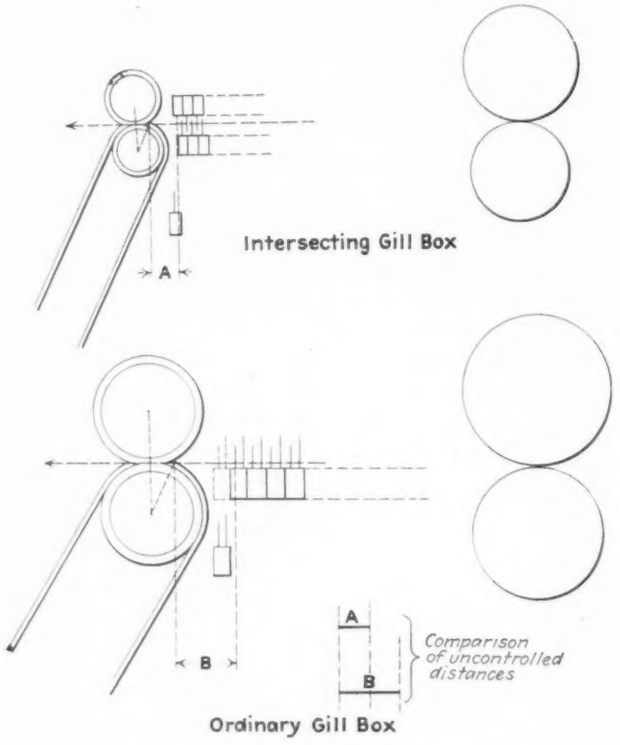
Practically all men will agree so far with the statements made, but when a discussion is held regarding gill-box construction, the dimensions of rolls, the details of pinning, and last, but most important, the drafts both back and front, differences of opinion become evident. These differences would not exist if the theory of gilling were thoroughly understood.

In every gill box it is impossible to obtain individual treatment of the fibers. The pins divide them into groups. The volume of fibers in each group must be great enough to cause compression and to retain those fibers which are not yet being drafted, but must not be sufficient to prevent the fibers being drafted from moving readily through the pins without danger of breakage. The pins must always be strong enough to withstand necessary strains. This explains why the first gilling processes, which handle large volumes of entangled fibers, use longer, stronger, and fewer pins per inch than the final gilling operation, where resistances are less.

Resembles Combing

What takes place in the drafting zone of a gill box can best be proved by an analogy drawn from the combing process. All types of combs use pin control to separate the noil from the top.

In the Lister comb, a gill box with specially designed



Comparison of intersecting and ordinary gill boxes

fallers feeds the slivers to a nip. A faller is removed for each nip. The nip grips the end of the slivers and detaches a fringe, drawing it through the pins of the fallers. Thus combing is done by the fallers. The portion gripped by the nip is uncombed and contains short fibers, first retained, then released as the faller drops. As the nip reaches the limit of its forward movement, the carrier-comb removes the detached fringe from the nip and lashes it over the large circle. The fringe, following one another rapidly, are pressed down between the pins. Later, as the circle revolves, a pair of rolls nip the longer fibers and draw them away from the circle. The pins retain the short fibers and impurities. Thus, noil is separated from the top.

The Noble comb accomplishes the same result in a different way. In this case, also, the noil is separated by means of the small circle and the drawing-off rolls.

In the French comb, the wool lap is held by a nip, while the free length projecting is penetrated by 18 rows of pins, which are carried on a revolving cylinder and which thoroughly nemove the noil. After noil removal, the nip opens, is raised, and, as a pair of rolls grip the end of the lap, a comb carrying one row of pins is lowered into the part of the lap already combed. The detaching rolls draw the fibers through the pins of the top comb, which prevents any noil from passing through.

Thus, in all combs the noil is either restrained or removed by means of pins while rolls detach the top.

Mixture Disturbed

In a gill box there is pin control, and rolls are used to draw the fibers through the pins. This in itself is similar to the combing action; for while the longer fibers are being gilled, short fibers are retained by the fallers. Thus the intimate mixture of long and short fibers is always disturbed and the grouping of short fibers cannot be avoided except when a certain condition exists.

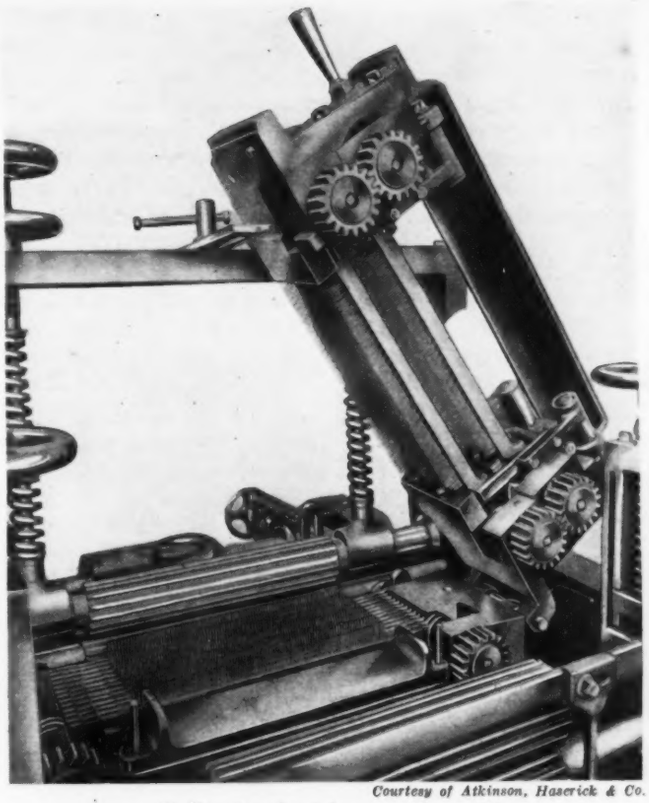
When the grouping is prominent, due to causes which will be explained later, "faller bars" result. Unevenness caused by overdrafting is basically due to the movement of the long fibers for too great a distance between the dropping of each faller.

It may then be stated as an axiom that, regardless of the type of gill box used, there is a tendency to group short fibers.

The factors controlling the maximum or the minimum amount of grouping are: (1) condition of the stock, (2) amount of short fiber present, (3) draft used, (4) dimensions of rolls and fallers, and (5) type of box. A discussion here of the theory of gilling will explain why these factors are important.

In the diagram the relative positions of fallers and front rolls are illustrated. The distances *A* and *B* are variables, but substitution of dimensions later will assist us in understanding why certain gill boxes are necessary for short wools.

The faller nearest the front roll gives only intermittent control. Due to its removal, control immediately moves to the next faller, to which we refer as the second faller. As soon as a faller drops, all short fibers controlled by it are left supported by the longer fibers, ready to respond to the drafting action or the resistance of fibers held by the fallers which are not yet subject to drafting action. Due to the tapered volume of fibers in the drafting zone, the drafting action is the greater force; thus, the short fibers are moved forward. The greater the distance between the nip of the front rolls and the first row of pins of the second faller, the greater is the number of short



Courtesy of Atkinson, Haserick & Co.

Faller head of intersecting gill

fibers liberated for each faller lowered. This distance may be called "the uncontrolled distance" existing in the drafting zone (see *A* and *B* in the diagrams). It is determined by (1) diameter of bottom front roll, (2) thickness of apron, (3) clearance between apron and faller, (4) pitch of screw (distance between adjacent fallers), (5) distance from edge of faller blade to center of first row of pins, and (6) alternating action of fallers in intersecting gill box only.

If all the dimensions 1 to 5 inclusive are reduced, the "uncontrolled distance" will be lessened, more fibers will be actually gilled, and the grouping of short fibers will be minimized.

What this "uncontrolled distance" is, can best be illustrated by a comparison between an ordinary and an intersecting gill box, as presented in the accompanying table.

DIMENSIONS OF ORDINARY AND INTERSECTING GILL BOXES (MILLIMETERS)

	Value	Ordinary Gill Box	Improved Ordinary Gill Box	Intersecting Gill Box A	Intersecting Gill Box B	O.P.S. Gill Box
Radius of roll...	+	25.4	16.0	12.7	16.0	9.0
½ arc of contact..	—	10.0	8.0	8.0	8.0	5.5
Apron thickness.	+	4.0	3.0	3.0	3.0	2.5
Clearance.....	+	3.0	2.0	2.0	2.0	2.0
Pitch.....	+	11.2	9.5	$\frac{8}{2}$=4.0	$\frac{6}{2}$=3.0	$\frac{12}{2}$=6.0
Faller edge to center of pin..	+	3.0	3.0	3.0	3.0	3.0
Uncontrolled distance	Millimeters	36.6	25.5	16.7	19.0	17.0
	Inches	1.44	1.00	0.66	0.75	0.67

The importance of the "uncontrolled distance" may be emphasized by stating that, during the development of the intersecting gill box, one maker claimed that his box shortened the "uncontrolled distance" by 1 mm. (1/25 in.). Analysis of a short, fine, B. A. wool would prove that 1/25 in. is important when gilling.

The intersecting gill box is the best example of the application of sound theory to gilling. It has smaller-diameter front rolls, thinner aprons, close setting of roll to faller, thinner fallers, one row of pins, and alternating

sets of fallers. All these modifications have been made with one object; that is, to gill as near 100% of the fibers as is possible.

Invented in 1885, the intersecting gill box is not valued or used so extensively as it should be, due entirely to a wrong conception of what constitutes a well-gilled end. Not only must the end be even and the fibers well straightened, but there must be an intimate mixture of long and short fibers especially after the comb. If a top is overdrafted on the gill boxes, no amount of drawing afterwards can make the yarn as even or smooth as it would have been. Previous to the combing, most mills have realized the importance of the use of intersecting gill boxes for all wools 56s and finer, because the noilage has been reduced 1½% to 3½%.

Mr. Gegauff of France fifteen years ago made the following statement: "Wool ordinarily noiling 10% on the comb would noil 16% if taken direct to the comb from the card. The fibers must be made more parallel in order to offer less resistance to the pins of the comb. Three passages of gills are sufficient, drafts 7.5 x 7.5 × 7.5 = 422. If the total draft is less than 400 before the comb, there will result an undue percentage of noil on the comb. There is no object in increasing the number of operations and lowering the draft."

Yet two gillings are considered sufficient to prepare a fine stock for the Noble comb. A total draft from 25 to 36 is considered ample when ordinary gill boxes are used.

If noil is reduced through the use of intersecting gill boxes, then the top must contain more short fiber, and it is necessary that such top should be properly handled after combing. However, most mills use ordinary gill boxes with front rolls of 2-in. diameter and screws of ⅜- or $\frac{7}{16}$-in. pitch on the finisher gills.

These tops are given similar treatment in the drawing. In many cases, the drafts are excessive for the stock on such gill boxes.

Low Draft Desirable

Theorizing and generalizing do not help or convince skeptics. Facts, however, are always listened to or read. A manufacturer in the Bradford district, Yorkshire, England, visited the mill of a friend. He asked what drafts were used on the gills for Botany wools. He was told that it was six, and he suggested that a draft of five be tried. After he had left, the overseer of the drawing was informed of the suggestion regarding a change in the draft, and he ridiculed the idea. Then the owner was shown the end from the two-spindle gill box, "As pretty an end as one could wish for," the overseer said. The friend, however, inquired again; and, upon being told what the overseer's opinion was, he again insisted that a change in the gill-box drafts would be beneficial and asked the owner if he would not insist upon a trial in order that he might be convinced by the results. The owner agreed and the test was made on one set. The improvement in the evenness and appearance of the yarn, and eventually in the difference in the fabric, surprised the manufacturer and convinced the overseer that a lower draft was better.

Samuel Kershaw said in "Textiles," June, 1923, "Draft has its effect on evenness, and each operation is capable of disturbing the evenness of the slubbing if drafts are excessive. Gill box drafts should be kept low and should be under the average draft of the drawing set. For Botany wool 5 should be the maximum draft imposed; for 56/58s quality, 5½; for 46/50s quality carded, 6; for longer wools, 7." Of course he referred to ordinary gill boxes.

In the attainment of evenness in worsted yarns, proper drafting is more vital than numerous doublings, especially on the gill boxes. Our experience has confirmed the opinion held by several worsted yarn men that, if the end from the two-spindle gill box is even and contains an intimate mixture of long and short fibers, the open drawing box, due to twist control, will maintain this evenness and intimate mixture. However, it cannot correct the evil effects of overdrafting in gill boxes. Back draft is important. Always use as little as possible—practically none for fine wools.

Improvements Possible

If every man in charge of top making and worsted drawing really understood the theory of gilling, all high drafts on fine wools would be abolished after the comb, with a marked improvement in the yarn, less spinning waste, and a higher yield. The outcome would be that, before the comb, drafts would be increased to obtain increased straightness and minimum noil. After the comb, intersecting gill boxes or improved ordinary gill boxes would be used. This course would also be adopted in the drawing.

In worsted drawing, gilling is the vital process for the fine wools. Consequently, after the comb the "uncontrolled distance" in any gill box should not be greater than the shortest fibers in the top. Some mills, in order to cheapen the yarn costs, blend short French-combed top with the Noble-combed top, and then attempt to gill this on ordinary gills with 2-in. rolls using a draft of 5½ or 6; and they wonder why slubs, uneven yarn, and poorer spin are prevalent. A fine top, given one gilling with suitable drafts on an intersecting gill box, looks better than after it has received two gillings on an ordinary gill box.

It is hoped that this article fully explains the real object in using gill boxes before the comb, and also shows that the "uncontrolled distance" and the total draft are each vital factors. The mill using intersecting gill boxes will find that a reduction in noil accompanies an increase in draft up to a total draft of 400. After the comb the use of gill boxes with a much reduced "uncontrolled distance" and avoidance of excessive drafts will increase the evenness and the strength of the yarn.

The intelligent use of improved gill boxes with a minimum "uncontrolled distance" offers a wide field for experiment with a view to reducing the number of operations necessary, or considered necessary, to produce a satisfactory yarn. Many mills have made great progress in this respect. In one mill we understand that a roving suitable for 1/24s of ½ blood is being made in four operations. If intersecting gills are used exclusively, limit spins can be processed using three to five less operations from Noble-comb sliver to yarn.

If worsted yarn manufacturers who are not yet convinced that the theories expounded are practical will only make the experiments regarding drafts and "uncontrolled distance," results will speak for themselves.

In conclusion we make two suggestions: (1) Measure the "uncontrolled distance" on all fine gill boxes from nip of front roll to second faller. (2) Lay out every lot of fine top on velvet board and ascertain by measurement and weighing what percentage of fibers in the top is not controlled during gilling. Very few men have done this. The result is astonishing, revealing at once the percentage of fibers not gilled or controlled.

Fair Trade Practices

for Transactions Between Mills and Converters

COMMITTEES representing the Textile Converters' Association and the Association of Cotton Textile Merchants of New York have drawn up, as reported recently in TEXTILE WORLD, a declaration of sound trade practices for transactions in cotton gray goods between mills and converters. An abstract of this declaration follows:

Definitions

Classification of Fabrics. These definitions apply only to gray cotton cloths generally used by the converting trade—fabrics made entirely of cotton or mixtures where cotton is the predominant fiber.

Specifying Quantity. The use of phrases such as "pieces of . . . . . yards woven double as far as practicable" should be discontinued, and all orders should specify the quantity in yards.

Length of Cuts. Double cuts are to be lengths of 80 yd. or over, and should average about 110 to 120 yd. to the shipment. Single cuts are to run from 40 yd. as a minimum to 79¾ yd., averaging between 55 and 60 yd. to the shipment. No cuts under 40 yd. are to be considered applicable on contract. No "two-part pieces" or "spliced pieces" are to be considered applicable on contract.

Packing. Single and double cuts are to be packed in separate bales. This does not apply where a shipment is less than eight bales.

Percentage of Single and Double Cuts. For the purpose of defining the percentage of single and double cuts allowable on contracts, gray cotton fabrics are divided into three groups as follows:

Group A: Drills, four-leaf twills, sheetings, print cloths, pajama checks, and osnaburgs. Group B: Pocketing twills, clothing twills, sateens (both warp and filling), jeans, carded broadcloths, print-cloth fancies up to and including eight harness. Group C: Print-cloth fancies above eight harness, combed broadcloths, all fine goods and fine fancies. (It is assumed that Group C will include all kinds of gray goods not covered by the other two groups.)

For fabrics in Group A at least 85% of the yardage is to be in double cuts, and not more than 15% in single cuts. For fabrics in Group B at least 80% of the yardage is to be in double cuts, and not more than 20% in single cuts. A tolerance of 2½% is to be allowed from the above percentages. The intent of this tolerance is that on an order for 10,000, 12,000, or 15,000 yd. one bale of single cuts may be included in a shipment. It is not intended that an order for 100,000 yd. may be filled with 17½ or 22½% of the yardage in single cuts. For fabrics in Group C, the percentage of single and double cuts should be governed entirely by agreement between buyer and seller.

Seconds. The word "seconds" is to be applied only in reference to manufacturing imperfections; that is, a "second" is a piece of cloth containing more manufacturing imperfections that would constitute a "first" according to the particular mill's standard.

Oil-stained goods are to be specifically sold as "oil-stained firsts" or "oil-stained seconds." It is recognized as unfair practice to mix oil-stained firsts with weaving seconds. This applies to oil stains not treated with remover as subsequently described.

Other types of damage should also be specifically defined. To illustrate, goods containing mildew, pinhole damage, torn selvage, and similar imperfections cannot fairly be designated as "seconds," but should be classified, packed separately, and sold on description. In the sale of special fabrics and/or confined patterns, all remnants, short lengths, seconds, and over-runs not applicable for delivery by the special terms of the contract shall be offered to the buyer of the special fabric either as accumulated by the mill or when the run-out is baled, at such price as the seller would make in the open market. The buyer must give a prompt answer as to whether or not he wishes to buy such offering. Should he decline or fail to give prompt answer, the seller may offer the merchandise elsewhere, but not before completion of the contract.

Use of Oil Remover. No goods containing oil stains are to be considered applicable on contract unless treated with oil remover. This provision is understood not to apply to the occasional yarn streak not commonly regarded as requiring oily classification. The use of oil remover is recognized as a legitimate mill practice. In most finishing processes the use of a proper oil remover compound by the mill is beneficial and necessary, and all goods, excepting those noted in the following paragraph, are to be so treated by the mill, unless the contract or sale note specifically provides otherwise.

If goods are to be "dyed from the bale" or "sulfur khaki" or "mineral dyed," the use of an oil remover would be harmful. Therefore fabrics that are usually finished by these methods, such as jeans and heavy twills for the clothing trade, are not to be treated with oil remover, and this is to be specifically provided for as part of the contract or sale note. The use of oil crayon and graphite pencils in marking goods causes damage and should be discontinued.

A list of oil-remover compounds or preparations has been approved by the National Association of Finishers of Cotton Fabrics.

Tolerances

Quantity. For staple fabrics of all kinds orders with the quantity specified in yards are considered to be correctly filled when the overage or shortage is less than half an average bale on the invoice. For special fabrics this quantity tolerance should be covered by an understanding between buyer and seller and an effort made to make the size of the order in multiples of a set of warps.

Width. The width shall not vary anywhere by more than 1%. The width shall not be uniformly less than the stipulated width, but must in the average or in the majority of pieces be equal to or greater than the stipulated width. Goods shall be measured at right angles to the selvages when laid upon a flat horizontal surface and smoothed out by hand, but not stretched.

Warp Count. Except within 4 in. of each selvage (where, exclusive of the selvage, the count must approximate that stipulated) the number of warp threads per inch shall not vary anywhere by more than two threads per inch below, nor more than three threads per inch above, the stipulated count. The number of warp threads in each piece should equal the stipulated count multiplied by the stipulated width with due allowance for the selvage threads.

Filling Count. The number of threads in the filling shall not vary anywhere by more than three threads per inch below, nor more than four threads per inch above, the stipulated count. In fabrics where the count of the filling exceeds the count of the warp, the allowance for variation shall be increased by the *(continued on page 59)*

Resetting the Roving Frame *to Improve Speed and Quality*

By William King

◆ *A periodic check-up on the roving frame is a beneficial and profitable piece of work. The very nature of the machine renders it subject to factors which disturb settings and reduce efficiency and accuracy. Faulty rovings due to worn parts and disturbed settings are inexcusable. The accompanying article outlines a complete and efficient procedure for resetting the frame and bringing it to the highest point of productive efficiency.*

AS WITH other machines used in the spinning and preparation of yarn, the roving frame must be periodically reset so that it may operate at the maximum speed and produce the desired quality of product. It is not necessary to elaborate here on faulty rovings due to worn parts and the disturbance of machine settings; it is sufficient to say that they exist and that a complete overhauling of the frame, insuring correct settings and renewal of worn parts, will prevent their recurrence and bring the frame to the highest point of productive efficiency.

Preparation and Initial Steps

A good supply of spare parts should be obtained before the work of resetting is commenced. This supply will include new flyers, spindles, spindle steps, roller slides, roller-bearing brasses and all those parts which are constantly requiring renewal.

The frame may be stopped at some convenient doffing time; and after the bobbins have been doffed, the flyers may be removed. These may then be repaired where necessary and rebalanced, either at the mill or by the makers. To avoid delay it is good practice to have a spare set of flyers in good repair and perfect balance to replace those which are undergoing the necessary repair. The top leather drafting rollers can then be taken out and the coverings examined. Rollers with defective coverings can be sent to the roller-covering department for renewal. Saddles and weight hooks are then removed.

Cap bars may then be taken out and the steel rolls examined to ascertain whether the necks are worn or whether the squares and sockets are defective, in which case the rolls must be disconnected and sent to the maker for repairs. If in good condition, the front roll is placed on top of the middle and back rolls and made fast to them while other work goes on.

The casing plates on the lifter rail can then be taken off, cleaned and tied together in sections after being plainly marked so that they may be replaced without difficulty and loss of time. When the lifter rail has been stripped and cleaned, the bottom spindle rail can be treated in a similar manner and the spindles ungeared and taken out of the collars. The cleaning of these rails is important. Special care in cleaning the collars and steps will amply repay the time spent on the work, since dirt in and about these parts is likely to deceive the mechanic when he starts to reset the collars. When cleaning is completed the adjustable spring-piece feet can be examined to insure that all washers beneath them are in the correct position.

Setting Rolls

For the purpose of setting the front-roll stands, a fine line is used. It is fastened to the last stand at the gearing end of the frame, passes through the bearings of the front-roll stands, and is made fast to the last stand at the "off" end of the frame. Sufficient paper is placed under the line in the bearings of the end stands to raise the line $\frac{1}{8}$ in. at each end. The line will then barely touch the roll bearing of the middle stand. A second line is placed along the front edge of the roll beam, and a block is placed behind the line at each end of the beam, the line being drawn very tight. A corresponding block is carried by the mechanic and is inserted at the roller-beam couplings to determine whether the beam is too far forward or too far back. Each coupling is tested and the beam adjusted by means of the spring piece until it is in the correct position.

The gearing end of the frame can then be set plumb and square with the driving shaft, this work requiring a plumb rule specially made to fit into the spring-piece slides. The frame end must rest evenly on its four packings. It is then possible to attend to each spring piece, beginning at the gearing end of the frame, and to raise or lower it according to the indications shown by the line near the brasses of the front-roll stands; the line running along the front edge of the roll beam will show whether the spring pieces require further adjustment backward or forward. After going over the whole length of the frame, it is advisable to repeat the operations, securing the lock nuts on the adjusting screws and distributing the weight of the spring piece evenly on the feet. The out end of the frame can then be leveled up and blocks put both in front and behind to prevent it from being disturbed during the resetting operation.

Lifter and Spindle Rails

When the roller beam has been set square with the gearing end of the frame, and the roller stands have been set level from end to end, the work of resetting the lifter rail and the spindle rail can be started. Five spindles are selected, each one the same length, and two placed at the end of each frame—one in the front

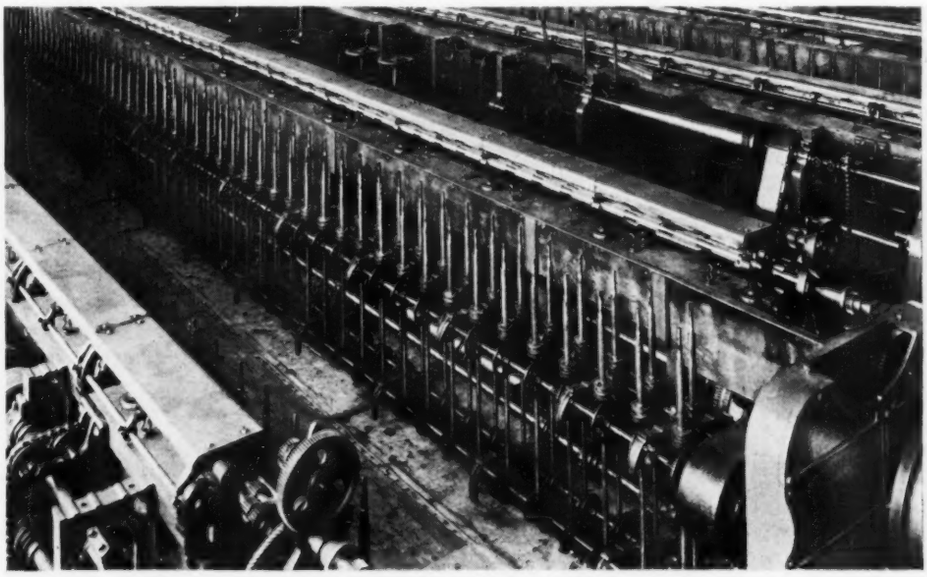
row and one in the back row. The spindles in the back row must be set the same distance from the roller beam at each end of the frame, and they must be perfectly vertical and revolve easily in their bearings. Double lines are then placed on the top of each row and double lines at the bottom, over the steps. It is then necessary to proceed with the remaining spindle along the whole length of the lifter rail and the bottom rail, adjusting the settings to permit the spindle to revolve easily in the bearings. The lines on the bottom of the spindle will indicate in which direction the spindle rail must be moved to be in line with the two spindles at the end of the frame, and the lines on the top of the spindles will show in which direction the lifter rail should be moved. A second passage across the frame is necessary in order to check up on the settings, and for the purpose of firmly securing the adjusting brackets.

The roller beam should now be square from one end to the other with the gearing ends of the frame, and also level throughout its entire length. The spindle rail and lifter rail should be parallel with the roll beam. It is now necessary to set each collar to the spindle, making sure that there is no binding in the collars or spindle steps. For this setting the lifter rail should be in the middle of the traverse. When the collars have been set, the bobbin driving-shaft bearings can be examined; and all those that are broken or damaged, replaced. After the necessary oiling and greasing of these parts has been completed, the bottom-rail middle casing plates can be placed in position, and the spindles put in their collars. All spindles below the level of the line can be raised to the proper height by placing washers under the shoulders of the steps. A new step is necessary when a spindle is unreasonably low. In the middle of the frame, allowance must be made for sagging in the line. The spindles can then be geared, the corresponding casing plates applied, and the bobbin gears put on their collars and geared. The casing plates are applied after oiling and greasing has been completed; it is essential that the oil holes correspond with the shaft bearings.

The next step is to set the lifter rail level. First set the rail exactly in the center of its traverse at the spring piece nearest to the diminishing or poker-bar bracket. This can be done by marking a bobbin exactly in the center, placing it on a spindle, and placing a flyer on the same spindle. The lifter can then be moved by hand until the line on the bobbin can be seen in the center of the flyer presser eye. It is then necessary to measure the distance between the top of the bobbin and the top of the spindle. A start must then be made at the gearing end, the mechanic proceeding to every alternate spring piece and raising or lowering the rail by means of the lifter shaft pinions until the distance corresponds to that required. This process must be repeated and the rail set at the spring pieces that were missed the first time.

When the rail setting is finished, every alternate lifter pinion should be set so that its teeth bear on the underside of the teeth in the lifter rack, the other pinions bearing on the top side of the teeth, thus permitting no play in the rack and pinions. This method of gearing prevents dwelling of the rail when a change of direction is necessary. While the lifter is in position, the diminishing slide and diminishing bar can be set level. The changes at each end of the lifter traverse can also be set by moving the rail by hand to its lowest position and setting the adjusting screws on the top cradle to change the direction of motion at the correct moment. The rail can then be wound to its highest position and the opposite adjusting screw set to change the direction at this point. All lock nuts on the lifter rail and its connections can then be well tightened.

The front roll can now be replaced, care being taken to see that it revolves freely in its bearings. The three lines of bottom rolls can then be reset to accommodate the length of cotton staple being used; all cap bars can be replaced and all cap nebs reset. The rovings can then be placed on the rolls, and the leather rolls placed in position and weighted. After all draft gears, twist motions, driving belt, and cone drum belts have been examined and renewed where necessary, and when all necessary oiling and greasing have been completed, the frame may be made ready for starting, and empty bobbins placed on the spindles.



A complete overhauling facilitates correct settings and renewal of worn parts

Before actually running the frame, it is necessary for the inside of each flyer leg to be polished so that the roving will pass through easily. This can be done by passing a rope of small diameter, covered with whiting or french chalk, along the channel. All flyers should be a good fit on the spindle. At this time the traverse motion can be examined.

When the frame is running, the bobbin must take up the roving delivered by the rollers evenly and the ends must be slightly slack. If the winding is too slack or too tight, a change of twist gear will solve the difficulty. When the correct running tension has been obtained, care must be taken to have the lifter rail move up and down in a smooth manner. The coils must be placed evenly side by side without overlapping, the spacing of coils being regulated by the lay gear.

If, during the build of the bobbin, the winding becomes tight, the tension gear requires alteration.

Ajax Hosiery Mills Develop Own Plan of Employee Training

By E. F. Egbert
Educational Department, Ajax Hosiery Mills

THE development of the Educational Department of the Ajax Hosiery Mills, with main plant at Phoenixville, Pa., came as a result of a survey of the reasons for a high rate of labor turnover and an unstable standard in production. Stanton D. Sanson, president, decided to do something about it. After a series of conferences the decision was reached that it was the job of the personnel director, F. E. Shugert, to develop a definite plan of training for present and future operators. This was begun at once through a series of conferences with mill executives. It was agreed to place a person experienced in industrial education in charge, to support him, and to look for results. It would be too much to say that the original plan in detail was perfect. Therefore, it is sufficient to confine our space more closely to just what has resulted from two years of serious trial.

This training scheme and its contributing influences have reduced labor turnover approximately 75%. It is also gradually and definitely increasing the morale, technique and efficiency of Ajax operators. The cost of maintaining coordination and necessary instructors is minimized by Federal and State funds made available for that purpose. Ninety per cent of the personnel is entirely Ajax trained.

Instruction in the standardizing of needle plyering technique

The educational program has reached a place where it is an outstanding activity of the personnel work. It is permanent and is proving its worth. Special recognition is given to the following four topics:

1. Careful and scientific selection of candidates.
2. An intensive and closely supervised schedule of training.
3. Efficient coordination.
4. Impartial promotion and thorough follow up.

Selection of Candidates

It is not sufficient to select a candidate on the strength of his being clean and neat-looking or possessing excellent eyesight, or even with the mere knowledge that he needs work. It proves to be worthwhile scientifically to lay out a course of questioning which will unravel what is being withheld by the candidate. Most candidates are on their guard, trying to say the thing they expect they should. Therefore, there is a good chance of accepting the wrong man and of placing a square peg in a round hole.

If it is a matter of placing the responsibility of choosing candidates upon the foreman or superintendent, he will usually devote less time to making a good selection than he would in checking or correcting the results of the work of an operator. Therefore it is logical that the selection of an apprentice should be made by one who may devote sufficient time to making such selections and also be ably equipped to follow the training through in a profitable and scientific manner.

In vocational interviews, the following ten factors seem to constitute a pretty complete course of questioning:

1. Personal desire for achievement, individual interests, desires and ambitions.
2. Special aptitudes in so far as the surface can be penetrated.
3. Apparent intellectual capacity—resourcefulness.
4. The price he is willing to pay to satisfy existing conditions and still satisfy himself—willingness and determination.
5. History, Avocational—hobbies and other emotional outlets.
6. History, Educational—point of view, past experience, level reached.
7. History, Personal—honesty, industry, attitude toward work, toward supervision and toward fellow workers.
8. Personality—health, appearance, mannerisms, reactions, stability, and emotional make-up.
9. General background—family, home life and immediate circumstances, and his attitude toward same.
10. The measuring of all the factors with sufficient accuracy to judge his ability to fit into the network, and to be successfully and happily engaged.

Defining the Job

It is the right of every member of a business organization to know what his job is and to be instructed in the technical details. This should be done scientifically so that he can visualize the limits of his responsibility. Most supervisors who train their own help outline the important features and leave the details to someone else. Eventually the supervisor, who has one standard, fails to see why his newer operators have another.

Little serious thought has been given to correct job specifications for the many different operations in the hosiery industry, as the following actual instance indicates. A supervisor, asking for toppers, said: "We need two boys." "What kind of material?" was the question asked by the employment representative. "Strong eyes and a weak brain," replied the supervisor.

An example of a less complicated operation, or job specification follows:

Topper

Scope of Work: Is required to loose course and place the lower courses of loops of a stocking leg on the topping stand. Transfer same to the transfer points and place in position on the footing machine to be footed.

Objectives: (1) To make absolutely perfect work. (A slight error prevents making passable work and involves considerable loss.) (2) When topping is thoroughly mastered this operator should then become familiar with the operation of the machine as it is his next promotion.

Skill and Knowledge: (1) Must aim to top one bar in less than one minute. (2) Must have general knowledge of legging, loose coursing, topping, footing looping, seaming, examining, etc. (3) Must have knowledge of all defects which may be caused in the processes. (4) Must have knowledge of silks and other fibers. (5) Should understand conditioning of silk. (6) Must acquire ability to keep equipment in perfect condition.

Physical and Mental Requirements: (1) Must be normal in health and habits. (2) Must have strong eyes and excellent vision. (3) Must take best care of hands. (4) Cannot be of extremely nervous type. (5) Must be nimble and energetic. (6) Must be cooperative and willing to assist with changes on the machine if conditions require it.

Centralizing Training Responsibility

The next step is to make a possible effort to permit only the most suitable material to get into the plant. This is handled by means of a training and proving laboratory known as the school which also provides a schedule of intensified training. The responsibility should be centered in one individual who knows how to teach and what to teach. This person may be any one of a number—foreman, personnel manager or supervisor of training.

Every employee should have a good general knowledge from a definite and reliable source regarding the industry and company of which he is a part—its history, development, organization, policies, objectives and procedures. Reliability of this service is assured only through centralization of the function. This information may be effectively presented through the following mediums: (a) A well organized course of instruction for employees; (b) regular conferences of foreman and supervisors; (c) manuals and bulletins; (d) company house organ.

Mechanical senses and manipulations can be lectured about and a parlor knowledge will be the result but this sort of knowledge will not produce technique or skill. Therefore, a laboratory is essential and the most successful alternative in beginning this development. It, combined with the lecture, makes a fair and productive set-up.

The plant floor is the goal but production is paramount and should not be interfered with any more than is necessary. It is no place for practice. Practice requires its own environment. Stopping, starting, changing, exploration, etc., have no place in the environment of the exacting and steady momentum of production.

Ajax and other industrial organizations have tried the idea of devoting mill equipment on the mill floor to training. It cannot be said this method was a failure but when conducted separately the most elementary trade practice is far more successful. After learners have gained a basic knowledge, then they should be seasoned on the mill floor.

By breaking away from tradition, a practical and more effective employee training plan has been put into operation by the Ajax Hosiery Mills. This method of employee training is not fantastically designed for a period of prosperity but is regarded by the company one of the outstanding reasons why Ajax has weathered the depression without decreasing its personnel.

A corner of the laboratory where aptitudes and capacities are tested—not imposing but efficient

One of the outstanding features of the modern training program is that it invites the interest of progressive or alert candidates. They know from the start that it is up to each individual to develop his capacities as rapidly as possible. This is his guide to advancement instead of time served.

Much good human material has either been lost or spoiled when left to learn the trade in the "alley" without proper guidance. An energetic boy of the desirable type will be industrious at a small wage if he can see that he is gaining ground and that his capacity to go ahead is not hampered by being required to "mark time" when he is capable of going a step higher. This does in no sense imply that an apprentice may choose his time for advancement. But if he knows that he may be advanced by displaying proper spirit, skill and industry, the attitude is certain to be much different from that developed if he knows it is necessary for him to serve a definite amount of time.

Need of Research

Apprentice training, like industry, must be guided with an open mind. Most enterprising industrialists necessarly have to be open-minded in order to cope with the constantly changing standards of production. The fact is that for some odd reasons *(continued on page 60)*

Women and Minors Now Out of Night Work in 97½% of Mills Subscribing to Plan

RECENTLY published reports to the effect that cotton mills in Greenville, S. C., were deviating from their announced policy regarding the discontinuance of employment of women and minors on the night shift, are, according to a statement authorized by the Cotton-Textile Institute, erroneous and misleading. In the 85% of the industry that announced conformity to the institute recommendation regarding night work of women and minors, practically all the cotton mills in Greenville, S. C., were included. Furthermore, the policy is in effect in all the subscribing mills in that section and in fact it is effective in 97½% of the subscribing mills throughout the entire industry.

There have been reports also of increasing night operation. What are the facts? Government reports of spindle activity show that in the southern States operating spindles have averaged during March, April and May, 1931, 67 hours per week compared with 78 hours per week for the same period in 1929. In view of the fact that June, 1931, production of staple carded fabrics decreased 7½% from the previous month, it is anticipated that the Government reports will show that the running time in excess of the regular day shift during that month will be even lower than in the previous three months. Furthermore, for the first two weeks in July reduction in production is unquestioned, figures for the first week now at hand already recording that fact and the extensive shutdowns in the week ended July 11, owing to extended observance of Fourth of July holiday, occasioning still further reduction in production. In northern States Government spindle reports indicate that active spindles are running on an average of 50 hours per week, which makes any possible night running in that section of negligible importance.

In commenting on the situation, George A. Sloan, president of the Cotton-Textile Institute, said:

"In the reduction of the excessive hours which previously characterized the work week in many mill centers and in the discontinuance of night employment of women and children, the cotton-textile industry has, during the recent depression, made an outstanding contribution toward correcting excess capacity and stabilizing employment.

"The rank and file of mills that have subscribed to these policies have long since effected them in their respective plants. There has been no deviation from these policies. Since March 1 approximately 500,000 spindles have been added to those conforming to the recommendation of discontinuing night employment of women and minors. The industry as a whole is more than one year ahead of the goal planned last October. The spotlight of an aroused public opinion is being focussed more and more on the small minority of mills which persist in unethical and unsocial policies. The industry is going forward, rather than backward, in these two great reforms."

▸ Flexibility of Southern Cotton Industry Stressed by Dr. Haney

"The amount of progress made by the southern textile industry in adjusting itself to conditions and in becoming more flexible is surprising," in the opinion of Dr. Lewis H. Haney, director of the Business Research Bureau, at New York University, and editor of the TEXTILE WORLD *Analyst* who is spending two weeks in the South and Middle West studying business conditions in those areas.

"The chief influences holding the cotton textile industry back at this time," Dr. Haney continued, "are on the demand side, and among those factors, unfortunately, is the price of raw cotton. The yield is highly uncertain but chances appear to favor a crop that, together with the carry-over, will give us a larger surplus next year than we had this year. If we do not have a strong raw cotton market, the industry will experience a slow recovery, depending upon general business conditions."

▸ Meeting the Demand for Textile Trained Men

More than 90% of the recent graduates of the Philadelphia Textile School have been placed in positions in the industry within a month of the completion of their course at that institution. Negotiations are already under way which will find the others located within a very short time. Such a condition, in the face of current conditions in industry, reveals the strong interest in securing men trained in textile activities.

Director E. W. France of the Philadelphia Textile School, states that never before has he witnessed such widespread interest and desire for the services of men suitable for future executive direction of the policies and operations of textile mills. Keen competition for business places a premium upon trained brains. To read the lessons offered by trends, said Mr. France, and to take fullest advantage of them by developing new and attractive styles and fabrics which will have a sales appeal, calls not only for general ability but for a keen sense of fiber blending, color harmony and fabric structure.

Demand for such men is larger than the supply, but the situation can be met, Mr. France believes, by employing men of good sound educational background, preferably with engineering inclinations, who have added thereto the fundamental basis of textile manufacuring and its requirements. An inquiry was recently made of him for a man capable of taking complete charge of the operations of a certain type textile mill. He replied that he knew of no man available whom he could recommend for such an important post. His recommendation was that an effort should be made to secure the services of a well-educated young man, with engineering background and some textile experience as an essential requisite to become a successful mill manager. His mind, trained to solve problems and to note conditions and activities taking place, would soon give him all the experience he required in the executive capacity, regardless of technical problems involved in individual processes. It was Mr. France's personal observation and experience, that such an experiment had proved successful in several instances.

▸ Piedmont Chemists Hold Outing at Charlotte

The business life of America has been saturated with an intellectuality and a fine appreciation of the arts unknown in past decades, according to Julian Miller, editor of the *Charlotte News*, who delivered the banquet address at the summer outing of the Piedmont Section, A.A.T.C.C., held at the Myers Park Country Club, Charlotte, N. C., July 11. Mr. Miller declared that business men now have an understanding of their responsibility to society and are effecting more real reforms in the world than all the so-called reformers.

Samuel Hayes, Hartsville, S. C., chairman of the section, acted as toastmaster at the banquet, and announced that the annual meeting of A.A.T.C.C. in 1932 would be held in the territory embraced by the Piedmont Section. Paul Haddock, of Charlotte, chairman of the golf tournament committee, presented prizes for the winning scores: W. B. Uhler, Spartanburg, S. C., first low gross; Peter Graham, Mount Holly, N. C., second low gross; A. G. McNair, Charlotte, N. C., and M. Roy Pickler, Greenville, S. C., tied for first low net. Hugh Puckett, of Charlotte, won the pipe race for the second successive year. George Feindel, Greenville, S. C., carried off first honors in the horse shoe pitching contest. Prizes were also awarded to members of the winning baseball and tug-of-war teams. More than 150 members and their guests attended the banquet Saturday evening.

▸ Fall Woolen Color Card Highlights Browns

Browns dominate the 1931 fall colors for the woolen industry, just announced by the Textile Color Card Association of the United States. The card shows 48 shades, one-third of which are tan and brown variations. Colonial red, Barabesque red and Radiance red reflect the Algerian influence and there are also a few pastels, including tile blue, cachou

beige, rosebuff and ocretone. In selecting shades, special effort was exerted to effect harmony and contrast with the fall silk shades, the association announces.

▸ Cottons Meet Statistical Improvement in June

Statistical reports of production, shipments and sales of standard cotton cloths during the month of June, 1931 were made public July 13 by the Association of Cotton Textile Merchants of New York. They show a conservative reduction of production rate, a small decline in stocks and a marked rise in unfilled orders.

Production during June (covering a five-week period) amounted to 260,163,000 yd., or at the rate of 52,033,000 yd. per week. This was 7.7% less than the rate of production during May.

Shipments during June (also five weeks) were 273,871,000 yd., equivalent to 105.3% of production. New business booked during the month amounted to 355,902,000 yds., or 136.8% of production.

Stocks on hand at the end of the month amounted to 288,235,000 yd., representing a decrease of 4.5% during the month. Unfilled orders on June 30, 1931, were 330,575,000 yd., representing an increase of 33% during the month and amounting to about six weeks production at the June production rate.

▸ Shah of Persia Fostering Industrial Program

The construction of a new yarn spinning mill at Aliabad, Persia, under the patronage of the Shah, constitutes the first step in that ruler's country-wide industrial program, according to advices from Minister Charles C. Hart at Teheran, made public by the Commerce Department. The plant was to have begun operation on March 22, the Persian New Year.

Progress in Cotton-Wrapped Cotton Bales Reported as Difficulties Are Overcome

THE illustration below shows one bale of cotton wrapped in jute bagging and two bales put up in 100% cotton bagging. This cotton material is 45 in. in width and weighs 12 oz. per lineal yard. Many southern cotton manufacturers have endorsed the movement for wrapping cotton bales in cotton bagging by declaring that they will compensate for the difference in the tare weight by allowing 7 lb. extra weight to be added to all bales wrapped in standard 100% cotton bagging.

Arthur W. Palmer, of the Division of Cotton Marketing, U. S. Department of Agriculture, Washington, D. C., in a letter to the King Cotton Syndicate, Gastonia, N. C., said: "The principal disadvantage of cotton fabric for cotton bagging seems to be economic rather than mechanical; that is, the cost of cotton bagging and the disadvantage of its light weight in a marketing system using gross weights. Of these the latter seems to be the more serious, under a system of gross weight selling there exists an economic barrier to the use of cotton bagging equal to the difference in pounds between a cotton pattern and a jute pattern times the price per pound of cotton."

Old type cotton bale in center, end and side views of new cotton wrapped bale shown at left and right

New types of 100% cotton bagging, such as those recently developed by several southern mills, eliminates the first objection raised by Mr. Palmer, as there is now available a good, heavy, 100% cotton bagging that favorably competes with jute bagging in price per pattern. As previously reported in these columns, scores of southern cotton manufacturers have announced their willingness to pay for 7 lb. of additional cotton in each bale wrapped with 100% cotton bagging, thus meeting the second objection mentioned above.

The American Cotton Shippers' Association recently formed a special committee to investigate the question of replacing jute bagging with a 100% cotton fabric and will propose a suitable resolution to submit to that organization. The South-Wide "Wear Cotton" Headquarters, Gastonia, N. C., of which Mrs. S. E. Barnwell, Jr., is secretary, are making determined efforts to popularize among cotton the idea of wrapping this year's cotton crop in 100% cotton bagging.

▸ Strikes and Rioting in Rhode Island Mills

Serious disorders marked the attempt to resume operations at the General Febrics Corp., Central Falls, R. I., on Thursday, July 9. The plant has been closed since May 7 when a policy of less looms per weaver, meaning less pay as the operatives were on piece rates, aroused such opposition that the mill was closed to avoid trouble. On Thursday 800 strikers, and enough sympathizers to swell the ranks to 2,000, picketed the plant and late in the afternoon rioting broke out, bricks and any available missiles being thrown through the windows of the plant. Police, reinforced by the fire department, battled the mob and the State Police were also called to the scene.

On Friday the mob again gathered in the vicinity of the mill. The appearance, in the afternoon, of Ann Burlac, fiery radical and organizer of the National Textile Workers' Union, again set off the fireworks and the crowd stormed the mill, throwing anything at hand. The situation had quieted down by Saturday, but the air was still tense and several units of the National Guard were ordered prepared for emergencies. George Manton, superintendent of the plant, stated that the mill would remain closed indefinitely. Several civic organizations started working toward a settlement.

The Royal Weaving Co., in the neighboring city of Pawtucket, where 1,300 employees were also on strike, planned to reopen on Monday, July 13, but Joseph Ott, manager of the mill, announced on Saturday that, due to conditions, the plant would remain closed indefinitely.

In Providence the employees of the Weybosset Mills of the American Woolen Co. struck last week for restoration of wage rates which were in effect before the cut last December. Attempts to picket the National & Providence Worsted Mills were abandoned, but strike leaders asserted that they were working for a general strike of the American Woolen Co. mills. The situation at the Weybosset was at a deadlock as the strikers refused to give in and a telegram from L. J. Noah, president of the American, stated that the plant could not operate at other than the present wage rates.

Overseers' Round-Table

THIS department offers a new subject for discussion each week and gives readers' comments on problems introduced during previous weeks. The subject which was opened four weeks ago is closed this week and a summary of contributed ideas is given on opposite page

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Basis for Laying Off Help

Editor, Overseers' Round-Table:

I BELIEVE there can be no hard and fast rule about who should be let go, old or new hands. All things being equal, those who have worked faithfully for a company for many years should be given preference. Of course, there is a tendency among old hands to feel that the company owes them a job on account of past services and to try to take advantage of this fact, but those who are faithful, willing and capable should be kept. Another point is that new hands are apt to try to do their very best at such a time for fear of being let go and then, when conditions are O.K., lay down on the job.

By all means give the older, faithful employees the better of the deal, thereby helping the morale of those who are younger in terms of service by showing them that faithfulness and good service are recognized.

As for me, I think that Bill is absolutely right. Regardless of sentiment it is to the best interests of the company to keep the older employees, for steadiness and loyalty are two of the best qualities for an employee and are most advantageous to the company from a business standpoint.

HOWARD A. GREEN,
Foreman Shipping, Utica-Willowdale Bleaching Co.

Editor, Overseers' Round-Table:

A BITTERLY opposed action which Tex took was when he let the two older women go and kept two young girls. The older women could be depended upon for they had been employed in the company for 20 years, while there is some doubt about the young girls. We all know the young girl is thinking more about where she is going that night or about the man she had a date with the night before. I am only 24 years old myself and have been married less than two years, so you see I still know what young girls are worth to the mill in comparison with the older help. Another thing is that you never know when a young girl is going to be married and when she does she may quit work at any time. Then you are just as badly off as you were in the beginning.

Loyalty, which the older help has, and which, with the younger is a question, is important. The older help will stick with you through thick and thin, while the younger help are liable to fly up and get mad and walk out. I think that, as long as the older help is faithful and sticks to the job, it would be foolish to exchange them for flappers.

W. H. HAND,
Anderson Hosiery Mills.

Editor, Overseers' Round-Table:

IN ATTEMPTING to answer the query of whether the old-timer or the youngster just coming on should be promoted I would be greatly influenced by the following considerations:

Our railroad organizations of the past have been the

Pete Favors Pensions For

"WHILE I was driving along the road the other day," Superintendent Chase said, "I noticed a man waiting for a bus, so I stopped and picked him up. Well, to make a long story short, we talked of this and that until the man finally got going on the subject of pensions. He was red hot. It seems that over at the furniture factory, where he worked, one of the bookkeepers, who had been with the concern for 40 years, got so old he had to retire. The company gave a little dinner, presented him with a watch, and gave him a quarter of his salary as a pension. What made the man I picked up so sore was that a few days later his father, who had been on the job for 35 years, had to give up work also because he was so feeble, but for him there was no dinner, no watch, and absolutely no pension. Without going into all this man raved about, what do you think of this proposition of pensions?"

"I don't see what the fellow was so sore about," Bill spoke up. "If the company wanted to give a pension to the bookkeeper and none to his old man, that was up to the company. Just because I slip a cigar to my favorite down at the filling station once in awhile doesn't mean that the whole Standard Oil Co. should kick because they don't get cigars. Get me right on this: The company doesn't owe anyone a pension. Anyone who works for the company gets paid, and it is up to the individual to save enough out of the pay to take care of old age. However, if a man sits around the office, or some place where the big shots see him and get to like him, the big shots have a friendly sort of feeling and may be give him a pension when he retires; just like I pass out the cigar to my friend at the filling station. After all, it's the company's money and not mine, so what kick have I got if I don't get a pension also? I won't even bother to tell you all the arguments there are in the fact that office help are pretty well satisfied to stay in one place a long time while mill help wander around a lot."

"What you don't realize," Pete came back heatedly, "is that responsibility goes hand in hand with

ons For All

authority. According to your way of thinking I suppose that no one should worry about all the unemployed at this time, but should just let them starve. The day of the hard-headed boss, who thought his responsibility ended when he passed out the pay envelope, is rapidly passing. Most workers are so much in the grip of the machine era that they are unable to look after old age and it is up to management to assume responsibility, or one of these days things will get so bad that there will be a social upset. I believe in pensions for all who are deserving. Probably the best plan is to have the workers contribute so much to a fund each week, and the company a like amount. Definite standards for pensions could be set up depending on wage received and length of service, the pension to start whenever a person over the age limit was forced to retire. It would be easy to work out the details and take care of such items as enforced lay-offs, or an employee leaving the service of the company. Believe me, unless management realizes that it has a responsibility you'll find the government forced into such things and no one wants that."

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Do *you* believe that a company should pay pensions and, if it does pay pensions, include all eligible workers?

Overseers and others are invited to discuss this and other questions brought up in the super's talks. Letters accepted and published will be paid for without regard to length. Brevity is desirable.

greatest exponents of the rights of seniority. Men filled their own particular niche and depended upon time and deaths for advancement. Such conditions, by eliminating individual incentive, placed a premium on routine service and retarded progress of the group as a whole. During the present depression we are reaping the harvest of this policy. Men have been thrown out of jobs which they have held for years and they are unable to fit in elsewhere. If they had been encouraged to prepare for advancement based on ability they would have a far better opportunity of landing something outside their narrow field. A man of this type works for me. Some time ago he turned down an excellent offer in another division because he was afraid he would not make good and would lose his seniority record in this department. Such a man will never get far.

On the other hand, a man with shorter record of service who is promoted because of his energy and ability to fill one particular job sometimes feels his subsequent progress is too slow. Moreover, lacking the background of experience this man will likely make a number of mistakes through misdirected effort. He tends to strike the high spots of a problem without thinking it through.

Hence, if knowledge and ability are equal, I would promote the man with the longer term of service, even though he were not quite as energetic. If the capabilities of each man for the job are not equal, then the interests of the company are served best by giving the job to the man best qualified, irrespective of length of service.

Z. E. SARGISSON,
Foreman, B. F. Goodrich Co.

Editor, Overseers' Round-Table:

TEX HAD a serious problem to deal with, but I think he handled it right in letting the old workers out. Fortunately, for Tex, he did not have any of the non-cooperators or complainers Pete speaks of, and this also shows Tex to be a capable and efficient overseer. His not having them shows that he already has them weeded out.

I believe, if you will take note, you will find that the old hands are holding up production in your department more than you think. You will very likely find that some of the younger ones are setting their pace to that of the old hands. Then you are not only losing what the old hands cannot do, but also what the younger ones can but do not do.

It is, of course, a serious proposition to lay off old and loyal hands. But we cannot run our jobs on sympathy. When it comes to letting someone out, as in the case Tex presents, I think it is right to let out the inefficient worker, regardless of age or length of time employed.

GEORGE.

Editor, Overseers' Round-Table:

WHEN IT comes to laying off help it is a rather ticklish proposition. You always have some *best* help, some you would keep regardless.

I believe it is a good idea to be fair to all the help and, in a case of this kind, to have a talk with them and explain the situation, giving them to understand that those producing the most work would be retained. Also that records would be maintained under regular conditions. By using this method no one could say that he, or she, was not fairly treated. With any other method some would say that you were showing favoritism.

G. W. S.

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Summary of Discussion on Letting Help Go

A new machine, which produced faster than the old and required less attention, made it necessary to let several operatives in the department go and the problem was whether old, faithful workers, who might be a bit slow, should be retained, or whether some of the youngsters should be kept because of their efficient production. Approximately 69% of the replies stated that every effort should be made to keep those with a long record of service, pointing out that steady work was often more efficient in the long run than the flashy speed of youngsters. The remaining 31% believed that the only point which should be considered was ability to produce, length of service, etc., being unimportant.

NEWS about MEN

✦ JOHN S. BUTLER was recently elected president of the St. Pauls (N. C.) Cotton Mills Co., Inc., succeeding J. M. Butler, who resigned. Dr. J. F. Nash was elected vice-president and A. R. McEachern re-elected secretary and treasurer.

✦ WILLIAM A. LONG has been elected treasurer of William Brown Co., Philadelphia, and succeeds James J. Sullivan, Jr. Mr. Long is also associated with Hare, Long & Co., public accountants, and has been comptroller and general manager of the Brown company for some time. Mrs. James J. Sullivan, who succeeded John Monaghan as president, continues in that office.

✦ C. E. HUTCHINSON, president and treasurer of the American Yarn & Processing Co., Mount Holly, N. C., hs been elected an alderman at Mount Holly.

✦ L. E. REYNOLDS and C. S. MCGOWAN have been named treasurer and general manager respectively of the newly organized Reynolds-Swain Co. which has taken over the Collar City Finishing Co., Troy, N. Y.

✦ OTIS E. BROWN, formerly with Marinette (Wis.) Knitting Mills, has been named manager and secretary of the Oneida Knitting Co. at De Pere. Mr. Brown also served with the Jersild Knitting Co. and the Green Bay Knitting Mills. C. P. JACKSON, who has been affiliated with the Oneida Knitting Co., for many years, will have charge of sales, devoting his entire time to distribution.

✦ C. C. OVERTON, who has become associated with the Pepperell Mfg. Co., will devote himself to the development and creation of new fabrics in the general work clothing range. He was for years president of the old Columbia Textile Co., New York, and was later connected with a number of other leading houses.

✦ FERDINAND THUN, president of the Berkshire Knitting Mills, Reading, Pa., has lent the beautiful building which was formerly Old Mill Inn, Wyomissing, to a group of women to be used as a nursery school. This is one of the first schools of the kind to be opened in Pennsylvania and will care for children between the ages of two and four.

✦ WILLIAM CANNAN, director of Brocklehurst, Whiston Amalgamated, Ltd., silk manufacturers of Macclesfield, Eng., is now visiting Canada.

✦ WILLIAM HUNTER, of Francis Willey & Co., Ltd., Bradford, Eng., textile manufacturers, is expected in Canada following his visit to the United States. While in Canada he will visit textile mills in company with LESLIE BIGGIN, manager of Canadian Wool Co.

✦ W. E. DUNTON, merchant of Montreal, has been elected to the board of directors of Bruck Silk Mills, Cowansville, Que.

✦ WALTER W. MOYER, Ephrata, Pa., underwear manufacturer, has sailed on the S.S. "St. Louis" for an extended stay abroad.

✦ R. GRADY RANKIN, secretary-treasurer, Textiles, Inc., Gastonia, N. C., has been appointed a member of the North Carolina State Budget Commission.

✦ GUSTAV OBERLAENDER, secretary-treasurer of the Berkshire Knitting Mills, Reading, Pa., has received a permit for a one story museum to cost about $24,000. This building will be built near his residence to house a large collection of valuable paintings and works of art which are now at his home "Go-Al-Do-Manor."

✦ IVY COWAN, assistant secretary and treasurer, Stonecutter Mills Co., Spindale, N. C., and Miss Ree Williams, also of that place, were recently married.

Henry P. Kendall, president of The Kendall Co., who has been appointed by Gov. Ely of Massachusetts to serve as a member of the Commission recently created by the Massachusetts Legislature on the stabilization of employment. Stanley King, Boston, is chairman. Other members of the Commission are Karl T. Compton, president of Massachusetts Institute of Technology; Henry S. Dennison, manufacturer, Framingham; Edwin S. Smith, personal assistant to A. Lincoln Filene, Boston; James T. Moriarty, Boston Central Labor Union; and Joseph M. LaFontaine Brockton labor leader. The Commission will serve 18 months.

✦ EDWARD SHIVE, is now associated with Robert Reis & Co., New York. He was formerly a vice-president, director and New York sales manager of the Taunton (Mass.) Knitting Co.

✦ ROY A. BURD, who has been vice-president and director of the Browning Hosiery Mills, Chattanooga, Tenn., has resigned to take charge of the seamless hosiery sales to the wholesale trade of the Richmond Hosiery Mills, Rossville, Ga. Mr. Burd's nephew, Damon H. Burd, will be associated with him and will make his headquarters in New York.

✦ E. A. HAMILTON, Birmingham, Ala., is now manager of the southern business of Raybestos-Manhattan, Inc., with headquarters at Birmingham.

✦ W. T. WOODWARD is general sales director of the Phoenix Hosiery Co., Milwaukee. Mr. Woodward was for years associated with the Gossard Corset Co. as a vice-president and general sales director.

✦ FRED L. SEELY, president of the Biltmore Industries, Asheville, N. C., accompanied by Mrs. Seely and two sons, is spending the summer in Europe.

✦ D. J. BOLTON was recently appointed superintendent of the Rockfish Mills, Inc., at Hope Mills, N. C., succeeding the late D. C. WILLIAMS, who was killed several weeks ago in an automobile accident near Fayetteville, N. C.

✦ J. W. ROBERTS, for the last twelve years superintendent of weaving at the Hobarton and Gibson plants of the Cannon Mills, at Concord, N. C., recently resigned.

✦ NICHOLAS SHONTEFF, Simcoe, Ont., has imported a quantity of silk worms from Japan and will begin experimenting upon them for the purpose of discovering a possible foundation for a new Canadian industry.

✦ GEORGE GORDON OSBORNE, assistant professor of knitting and designing in the Textile School of North Carolina State College, has been granted a year's leave of absence in order to do advanced work at Harvard. D. B. HARDIN, teaching fellow at the college for two years, will succeed Mr. Osborne.

✦ R. C. VEACH, Gastonia, N. C., has moved to Cherryville, N. C. Mr. Veach will be in charge of the laboratories of the Rudisill group of cotton mills which includes Carlton Yarn Mills, Nuway Spinning Co., of Cherryville, Rex Mills, Ranlo, Rudisill Mills, near Lincolnton, N. C., and the Cartex Mills, Salisbury, N. C.

✦ HARRY H. DAW, agent for the Wuskanut Mills, Inc., Farnumsville, Mass., spoke on "Men's Worsted Lines" before the Kiwanis Club of Millbury, Mass., on July 9.

✦ JOSEPH WILKINSON, assistant agent of the Wood Worsted Mill, Lawrence, Mass., has resigned and will retire from the textile industry. He will sail from New York on July 29 for a six weeks' tour of Europe. He has been connected with the American Woolen Co. for 38 years and went to Lawrence from Plymouth in 1893 to accept position in the Washington Mills. In 1906

he was transferred to the Wood Mill and became assistant to Agent Walter M. Lamont. Upon his return from Europe he will devote his time to the teaching of music.

✦ EDWIN B. BINKS of the office force of the Draper Corp., Hopedale, Mass., has been appointed chairman of the general committee in charge of the 31st annual employees' field day which will be held on Aug. 15.

✦ HILL HUNTER, general purchasing agent of the Proximity Mfg. Co., Greensboro, N. C., has been reelected a director of the North Carolina Railroad Co.

✦ FERDINAND THUN, JR., son of the president of the Berkshire Knitting Mills, Reading, Pa., has joined the sales force of that organization.

✦ CHARLES P. FULLAM, Chicago, has been appointed representative for Apex Hosiery Co., Philadelphia, in the Mid-West territory.

✦ W. M. O'DOWD, formerly with the Charlotte (N. C.) laboratory of the E. I. du Pont de Nemours Co., Inc., dyestuff division, recently accepted a position with Cannon Mills Co., Plant No. 6, Concord, N. C.

✦ R. R. DORSETT, Charlotte, N. C., recently resigned as sales representative for Rohm & Haas, Inc.

✦ HENRY G. STEINBERG, formerly in charge of the finishing departments of the Stillwater Worsted Mills at Harrisville, R. I. and Goshen, Va., will now be superintendent of dyeing and finishing at these mills.

✦ WILLIAM J. GRAHAM, Calais, Me., foreman in Canadian Cottons, Ltd., mill at Milltown, N. S., has retired after 50 years of continuous service. He is succeeded by H. C. TRECARTIN, a veteran employee.

✦ FRANK A. CROSS has completed 65 years of service with the Whitin Machine Works, Whitinsville, Mass. He is 86 years old, a Civil War veteran and was foreman of the carpenter shop of the works for 19 years. During the World War he was superintendent of the guard at the plant.

✦ EUGENE TANNER, who holds a position with the Sterling Hosiery Mills, Spindale, N. C., was married recently to Miss Vivia Hair, of Clinton, N. C. Mr. and Mrs. Tanner will make their home in Spindale.

✦ A. P. SMITH, has been appointed head of the weaving department of the Southern Brighton Mills, Shannon, Ga.

✦ W. H. NOBLETT has been appointed overseer of carding and spinning at the Ranlo Mfg. Co., Gastonia, N. C.

✦ F. H. THOMPSON, formerly with Deep River Mills, Inc., Randleman, N. C., has succeeded B. D. PENDLEY as overseer of spinning at the Lowe Mfg. Co., Huntsville, Ala.

✦ ANTHONY ZEBESKA, formerly with the Bell Co., Worcester, Mass., has accepted a position as dresser tender with the Coe Woolen Co., in the same city.

Obituary

Albert S. Waitzfelder

Albert S. Waitzfelder, well-known knit goods manufacturer, and former president of the National Knitted Outerwear Association, who died recently, was an outstanding figure in the knit goods industry for many years. Mr. Waitzfelder organized the Waitzfelder Braid Co., Brooklyn, and headed that firm for many years; later he became associated with the Standware Knitting Mills, Brooklyn.

At a recent meeting, the executive committee of the National Knitted Outerwear Association adopted a resolution, expressing regret at his death. The resolution read in part: "Mr. Waitzfelder served both the industry and the National Knitted Outerwear Association, not only in the capacity of loyal member, but as committee man, director, and president. His keen interest in the promotion of the highest ethics, and his own personal integrity in all his dealings, placed him high in the regard of every factor in the industry. It is with profound feeling of loss that the National Knitted Outerwear Association, by this resolution of its executive council, extends to Mr. Waitzfelder's family their deepest sympathy."

Mortimer M. Lee

Mortimer M. Lee, head of the Hadley Silk Mills, Paterson, N. J., died July 9 at his New York office. Mr. Lee was a resident of Norwalk, Conn., and was born at Farmington, Pa., in 1846. He had commuted daily to his New York office for the last 44 years, and was active in the manufacture and importation of silk until his death at the age of 85. In 1880 Mr. Lee started as a silk importer as a partner in the firm of Haughton & Lee, New York. Later this company was identified as Mortimer M. Lee. Previously he had engaged in the silk manufacturing business with his father at Farmington, N. J., and later at Elmira, N. Y. Mr. Lee had been vice-president and director of the Peoples Bank & Trust Co., Norwalk, resigning about three years ago. He had served the city of South Norwalk for six terms, and in 1905 was a representative to the State Legislature. He was affiliated with several Masonic organizations and a number of trade bodies.

A. M. Kistler

A. M. Kistler, aged 59, president, Valdese (N. C.) Mfg. Co., and director and stockholder in a number of other large textile plants, died suddenly July 5, at a hospital at Morganton, N. C., where he had undergone an operation two weeks before. He was a native of Pennsylvania but had been living at Morganton 33 years. He is survived by his widow and two sons. He was also president of the First National Bank, Morganton, and was a stockholder and director of nearly every industry in Burke County.

John Norris

John Norris, operating the Almeda Mills, Philadelphia, Pa., died Wednesday, July 8, after a long illness, at the Hotel Sterling, Atlantic City, N. J. In addition to his textile interests, Mr. Norris was the proprietor of this hotel which he had operated for 20 years. Mr. Norris was 76 years old. He was president of the "7.45 Club," an organization of prominent business men commuting to Philadelphia. He was unmarried.

Edwin C. Mason

Edwin C. Mason, aged 79, former secretary and treasurer of the Phoenix Hosiery Co., died June 25 at his home in Milwaukee, Wis. Mr. Mason was connected with the Phoenix concern for 34 years, retiring last February because of poor health. He is survived by his widow and a son.

Tom Lattimore

Tom Lattimore, aged 30, superintendent, Kershaw (S. C.) Cotton Mills, died suddenly in Shelby, N. C., recently under an anaesthetic given him for the extraction of several teeth. He was a graduate of State College, Raleigh, and the only son of Mr. and Mrs. Sam C. Lattimore, of Cleveland County, N. C. He is survived by his bride of a year.

M. Luther Hatley

M. Luther Hatley, overseer, Wiscasset Mills Co., Albemarle, N. C., was killed in an automobile-train collision near New London, N. C., July 12. Two other occupants of the car which Mr. Hatley was driving died from injuries sustained in the accident, while W. Travis Hatley, Kings Mountain, N. C., a brother of the deceased, was seriously injured. Mr. Hatley was 50 years of age and had been an overseer with the Wiscasset mills for about 15 years. He is survived by a widow and seven children.

Emil P. Mueller

Emil P. Mueller, aged 55, foreman for the Allen-A Hosiery Co., Kenosha, Wis., for 36 years, died July 3 at his home there after a three week's illness.

Textile Calendar

Carolina Yarn Association, Second Annual Golf Tournament and Outing. (Place to be announced later.) Sept. 18 and 19, 1931.

National Association of Cotton Manufacturers, Annual Meeting, Providence-Biltmore Hotel, Providence, R. I., Oct. 7 and 8, 1931.

American Association of Textile Chemists and Colorists, Annual Meeting, Boston, Mass., Dec. 4 and 5, 1931.

Southern Textile Exposition, Textile Hall, Greenville, S. C., Oct. 17 to 22, 1932.

NEWS about MILLS

Cotton

***Clark Thread Co.**, Austell, Ga., has awarded the contract for installation of electric wiring, motors, and other electrical equipment to Huntington & Guerry, Inc., Greenville, S. C.

***Trion (Ga.) Co.'s** large addition will cost about $200,000. A. K. Adams & Co., Atlanta, Ga., general contractors, are erecting the new addition which is part of a $1,000,000 expansion program at the Trion plant. It is estimated 1,000 looms will be started on a night shift when the new building is completed which will afford employment to about 500 additional operatives. J. E. Sirrine & Co., Greenville, S. C., are the engineers in charge.

Henderson (Ky.) Cotton Mills, for the last few years owned by the Consolidated Textile Corp., idle for the last three months, and operated on a intermittent basis for some time prior to that, might be taken over by W. P. Paxton, capitalist of Paducah, Ky., who was in Henderson, and stated that it would require $600,000 to purchase the plant and place it in operation. He was said to have been seeking support in Henderson to the extent of $250,000. He also stated that he would endeavor to arrange financing in New York. Mr. Paxton is head of the Southern Textile Machinery Co., the Classner Hosiery Mills and the Arcadia Hosiery Mills.

***Lancaster Mills,** Clinton, Mass., has leased the four-acre weave shed and a part of the five-story spinning mill to the Colonial Press, Inc., Boston, box printers, through the Clinton Real Estate Trust. Some 200 carloads of machinery will be shipped from Boston.

Ellenboro (N. C.) Mfg. Co. has completed the installation of 28 new looms and the addition of a modern dyeing department. It has begun full time operating schedule with more than 30 loom operators, dyers, finishers and others employed.

Kendall Co., Paw Creek, N. C., will soon begin superstructure for a one-story brick addition, for which contract recently was let to the Harrison-Wright Co., Charlotte, N. C.

Pilot Mills, Raleigh, N. C., recently purchased by W. H. Belk and associates from Consolidated Textile Corp., is now running full time producing seat covers, novelties and other products. The plant has orders booked for several months ahead, it is said.

***Edna Mills Corp.**, Reidsville, N. C., which was purchased from Martel Mills Co., New York, is now operating on twills and print cloths. J. B. Pipkin is president, E. E. Pipkin, secretary, J. W. Norwood, vice-president, and T. L. Lewis, superintendent.

Somerset Mills, Inc., Roxboro, N. C. An addition has just been completed and a number of new looms are being installed which will more than double the output of the plant.

Dover Mills, Shelby, N. C. Spinning rolls are being equipped with the Guillett interchangeable tapered fitting necks by the Dixie Spindle & Flyer Co., Charlotte.

Virginia Textile Corp., Lynchburg, Va., subsidiary of Dundee Textile Corp., Passaic, N. J., is considering the erection of a one-story addition for the transfer of manufacturing operations to Lynchburg from New Jersey.

**Indicates previous mention of project.*

Wool

Mystic Woolen Co., Mystic, Conn., in resuming operations after the holiday shutdown, started up 49 looms, whereas for the last few months only a few machines have been operated. Further increases in the number of looms used are planned.

Sterling Worsted Mills, Worcester, Mass., have given up their branch plant on Beacon St., Worcester, and will consolidate it with their main plant at 33 Bradley St., in that city. The old looms are being junked while the newer ones will be moved.

Hirst-Roger Carpet Co., North Wales, Pa., have moved their offices from Philadelphia to their mill at North Wales, Pa.

Stillwater Worsted Co., Harrisville, R. I., has awarded general contract to O. D. Purington & Co., 49 Westminster St., Providence, for a mill addition. The owners will do the heating, plumbing and electrical work themselves.

Cherry Brook Worsted Co., Woonsocket, R. I., recently organized with a capital of 100 shares of stock no par value to operate a local worsted mill, will be represented by Octave J. Pothier, 83 Earle St., Woonsocket, principal incorporator. Hugo A. Jarret, Woonsocket, is also interested in the new company.

Hollands, Ltd., Manchester, Eng., spinners of fine botany, worsted, cashmere and merino spinners, may establish a Canadian branch mill at Joliette, Que. While no decision has yet been reached it is thought likely that the firm will locate there.

Knit

Jacobs-Spivey Silk Hosiery Mills, Bridgeport, Ala., has added more than 100 additional employees.

***Princeton Rayons, Inc.,** Watertown, Conn., which acquired the Belding Heminway plant, has completed installations in the dyehouse. Knitting machinery and other equipment is arriving by motor truck from Petersburgh, Va., and 60 men are employed setting it up.

Schuessler Knitting Mills, Inc., 3808 Fullerton Ave., Chicago, have been organized with a capital of $10,000, by Carl F. Schuessler and Hugo A. Hamerly, to operate a local plant.

House of Byer, Cambridge, Mass., manufacturers of children's and infants' hosiery, is moving its plant from 56 Amherst St. to 18 Ames St. It will have about one-third additional space which will enable it to operate more advantageously.

Contoocook Hosiery Mills, Hillsborough, N. H., which closed several months ago, may open again. Business leaders are attempting to sell $25,000 worth of stock which will make possible the reopening of the mills. These mills have been the mainstay of the town for many decades and employed as many as 350 on a fairly regular schedule. The bulk of the former operatives are still available and will be given back their old jobs.

Asheville (N. C.) Silk Hosiery Mills have just completed an annex with a floor space of 11,000 square feet. Knitting machines are being increased from 17 to 25 immediately and a dye plant is being installed to begin operation Aug. 1. Employees will be increased from 125 to 250 within the next few months. The cost of the expansion program is placed at $150,000. The plant has been on a full day and night schedule since January and has large orders ahead.

Brookfry Hosiery Mill, Hickory, N. C., recently began operations with equipment consisting of 12 latch-needle knitting machines, two loopers and two ribbers, producing men's half hose. John D. Brooks is manager of the new concern.

***Adams-Millis Corp.,** High Point, N. C., closed bids on July 13, for a new five-story addition to its mill on Pine St., to be equipped primarily as a finishing unit, reported to cost over $100,000, with machinery. It will be 55x100 ft., of reinforced concrete, brick and steel. Louis Mulhausen and Charles A. Blatchley, Drexel Bldg., Philadelphia, are consulting engineers.

McPar Hosiery Mills, Marion, N. C., are building a brick addition in which office and yarn room will be housed. Twenty-two new knitting machines, six ribbers and six loopers are being installed.

Indera Mills, Winston-Salem, N. C., are running on an overtime production schedule with full working quota in all departments and will hold to that basis for an indefinite period.

Colonial Knitting Mills, Inc., Mohnton, Pa., hosiery manufacturers, resumed operations after two weeks' shutdown. Due to a hot wave several weeks ago, a composition material in the roof of the buildings melted and allowed tar to drop on machinery and materials, caus-

ing considerable damage. The roof covering was replaced during the shutdown.

Thomas W. Buck Hosiery Co., Philadelphia, Pa., has settled its strike and is now operating with union labor.

Nomend Hosiery Mills, Philadelphia, Pa., have leased and will occupy space in building at 3111 Allegheny Ave., totaling 25,000 sq.ft. Their present plant on Indiana Ave. will be removed to the new location.

Cadet Hosiery Co., Inc., Columbia, Tenn., was sold, as confirmed by the Federal Court, to Massachusetts Knitting Mills, Inc., Boston, for $153,000. J. S. Gordon, president of the buying concern, announced that the plant at Columbia will resume operations at once, manufacturing full-fashioned hosiery, with 400 operators.

Mountain Hosiery Corp., Narrows, Va., has recently announced a proposed extension of its plant.

Virginia Maid Hosiery Mills, Pulaski, Va., expects to extend its plant.

Mason Knitting Co., Acton, Ont., Canada, will add a story to their knitting plant on Willow St.

Supreme Knitting Mill, Toronto, Ont., Canada, silk hosiery, is moving its equipment and offices from 119 Pearl St. to 43 Davies Ave., according to local report. With additional equipment and more floor space the firm will increase its production considerably.

**Indicates previous mention of project.*

Silk

Willimantic (Conn.) Silk, Inc., and the **Kobe Silk Co.,** Willimantic, are organizing three 8-hour shifts in the weaving departments. The former company has 33 looms and 110 employees, the latter 104 looms and 375 employees. All other departments of the two companies are on two shifts.

Kaygo Silk Corp., Paterson, N. J., recently organized with a capital of $100,000, to operate a local silk mill, will be represented by Abram I. Bluestein, 126 Market St., Paterson, an attorney. Robert P. Lippman, Paterson, is principal incorporator.

DeWitt & Boag, Inc., Castile, N. Y., silk manufacturers, have stepped up production schedules to 24 hours a day, working three shifts. Steady employment for several months is assured the full complement of 50 employees.

Pennville Silk Co., Perkasie, Pa., is closed because of a strike by the weavers, resulting from a reduction in rates which they allege affected their earnings nearly 50%. Fifty other employees are idle and will have no work until the weavers return.

Associated Textiles of Canada, Ltd., 1449 St. Alexander St., Montreal, have let a contract for a plant addition at Louisville, Que., to cost approximately $75,000. The foundation has already been completed.

Courtauld's (Canada) Ltd., Cornwall (Ont., Can.) silk manufacturers, have completed the construction of the large addition to their mill and are now installing the machinery which it is hoped will be in operation sometime this month. When the new plant is ready the employee staff will be increased by 50%, bringing the number of employees to 1,500.

Finishing

Hart Dyeing Co., formerly of Newark, N. J., is now located at Howard and Oxford Sts., Philadelphia. They have completed alterations and are working on a normal schedule.

Solway Dyeing & Textile Co., Pawtucket, R. I., has arranged for a change in company name to Solway Mills, Inc.

Clyde Dye & Print Works, West Warwick, R. I., have arranged for an increase in capital from 1,000 shares of stock, no par value, to $150,000 and 1,000 shares of stock, no par value.

TEXTILE WORLD Cotton and Wool Index Numbers

COTTON INDEX NUMBERS

Date	Cotton	Yarns	Gray Goods	Colored Goods	Aver. for Cloths	Group Average
July 31, 1914	100	100	100	100	100	100
1925						
January	192	197	195	173	184	187
April	196	194	193	180	187	188
June	192	179	181	177	179	179
July	197	183	185	176	181	182
October	174	189	193	178	186	186
1926						
January	167	175	177	162	170	171
April	153	163	161	155	158	159
June	149	152	153	152	153	152
July	149	149	151	141	146	147
October	106	141	147	144	146	143
1927						
January	107	134	140	140	140	138
April	118	136	143	142	143	140
June	135	147	152	144	148	147
July	143	149	156	145	151	150
October	168	176	184	169	176	176
1928						
January	151	163	166	166	166	165
April	164	160	160	165	162½	162
June	172	163	161	168	165	164
July	174	167	165	168	166½	167
October	157	161	162	164	163	162
1929						
January	162	166	158	169	163½	164
April	163½	164	157	173	165	165
June	150	160	148	167	157	158
July	149	160	149	166	158	158
October	147	160½	155	161	158	158
1930						
January	138	149	141	157	149	149
April	131	139	129	156	143	142
June	116	127	120	150	135	133
July	105	120	119	142	130	128
October	85	110	115	125	120	117
1931						
January	82	102	107	124	115	112
February	88	104	106	124	115	112
March	87	102	109	125	117	113
April	82	100	106	125	116	111
May	75	98	99	125	112	108
June	72	94	95	122	109	104

ALL of the indexes in the cotton group showed further losses in June, as did raw wool and tops in the wool group. The worsted yarn and cloth figures were the same as for May. A new cloth has been added to the latter index to make it more sensitive to market changes and to bring it into line with the other indexes of the wool group.

Of the cotton textiles, the three point drop in colored goods in June stood out in view of the firmness this index had shown since the first of the year in the face of severe losses in raw cotton, yarn and gray goods. Strangely enough, this loss occurred in the fourth week of June when each of the other indexes in this group moved upward. The figures for this week were as follows: Cotton, 80; yarn, 96; gray goods, 96; colored goods, 119.

A decline of three points in wool to 97 and one point in tops to 110 were the only changes in the June indexes for the wool series, yarns and cloths being unchanged. This is the first time that wool has broken through 100 since our indexes were started in 1919.

Inquiries regarding interpretation and use of these indexes may be addressed to TEXTILE WORLD, Statistical Dept., 1427 Statler Bldg., Boston, Mass.

WOOL INDEX NUMBERS

Date	Wool	Tops	Yarns	Cloth	Group Aver.
July 31, 1914	100	100	100	100	100
1925					
January	215	213	211	229	221
April	219	234	230	241	235
June	204	211	210	241	225
July	216	217	216	239	227
October	216	212	212	227	220
1926					
January	215	213	211	229	221
April	181	193	198	211	202
June	173	183	188	207	195
July	173	184	189	202	193
October	178	186	193	197	192
1927					
January	178	187	190	197	191
April	177	182	184	193	188
June	177	180	182	193	187
July	180	183	183	193	188
October	185	185	189	194	190
1928					
January	194	193	186	195	192
April	199	206	198	198	199
June	204	209	203	198	201
July	204	206	203	197	200
October	197	197	203	198	199
1929					
January	199	198	201	198	199
April	187	189	198	197	195
June	173	174	191	197	189
July	169	170	188	197	188
October	164½	169	188	197	187
1930					
January	148	161	177	197	181
April	127	139	164	186	167
June	124	135	160	186	165
July	125	135	158	184	163
October	124	135	154	180	161
1931					
January	112	127	148	178	156
February	106	122	143	178	153
March	101	112	139	174	147
April	101	112	134	167	143
May	100	111	134	162	140
June	97	110	134	162	140

New Machinery *and* Processes

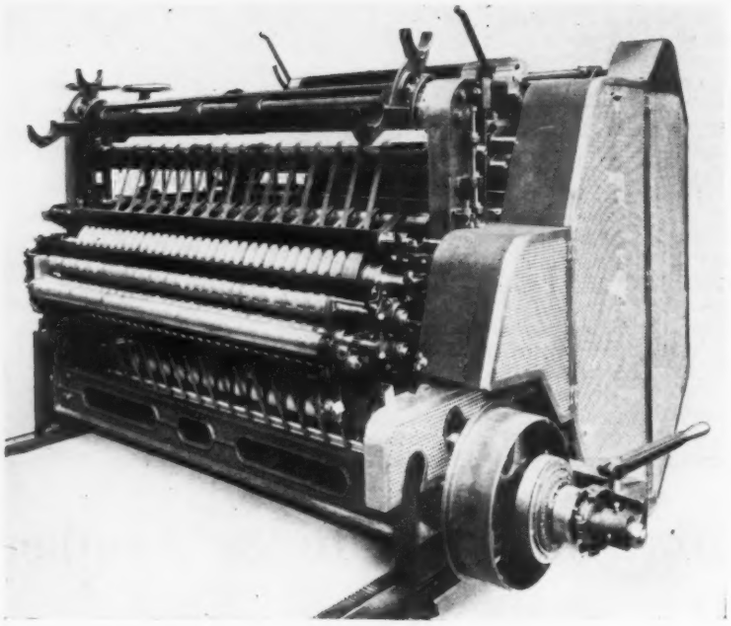


Fig. 1. Deep grooves prevent stretching of tape

Deep-Groove Tape Condenser

ANNOUNCEMENT of a deep-groove tape condenser is made by Proctor & Schwartz, Inc., Seventh St. and Tabor Rd., Philadelphia. This condenser is designed to handle fibers ranging from cotton waste to the longest carpet wools.

A feature of the machine is that with the deep-groove dividing disks there is a deep space into which lint and other waste fall, thus eliminating possibility of their getting under the tape and stretching it. It is pointed out that not only are the tapes much shorter in this type of machine, but there are no twists in them to dislodge the web of stock from the tape. The tapes return through the space between the disks, this action separating the fibers, cleaning the edges of the tapes, and rubbing off any accumulations of stock from the back of the tapes.

The thin card-web is supported by the tapes and carried into the dividing rolls at which point the actual separation takes place—the fibers being held between the tapes and the dividing disks. The dividing disks are carefully machined from drop forgings.

In each tape, there is a turn, which is so located that the twist comes on the return run of the tape in order that it will be perfectly flat at the point where it is carrying the web.

The condenser is equipped with double aprons or tandem rubbers, although a single apron of about 30-in. inside circumference may be used for stock not requiring such a high degree of condensation.

The machine is very rigid in construction and is equipped with ball bearings wherever practicable. The feed rolls and vertical eccentric shafts, for example, are set in ball bearings. The drive for the eccentric shafts is by bevel and spur gear and comes at the midpoint of the shafts, thereby equalizing the load. This method of driving eliminates the necessity of using a crossed belt and lessens danger by keeping the belt away from the floor.

All gearing, which is well guarded, is of cut-tooth steel construction. The sprocket and chain drives consist of bushed roller chain with cut-tooth sprockets.

Both the tapes and the rub aprons are made of imported tanned leather. The eccentrics which drive the aprons are equipped with ball-bearings, and are capable of a speed of 500 strokes per minute. The eccentrics have the added feature of a setting device by which the apron stroke may be varied by increments of $\frac{1}{8}$ in.

The condensers are built to deliver from 48 to 200 ends onto a positively-driven roving drum of either aluminum or wooden construction. Models are made to accommodate cards 48 in., 60 in., and 72 in. in width.

Gear System for Textile Printing Machines

DEVELOPMENT of the STS gear system for rotary textile printing machines has been announced recently by Rice, Barton & Fales, Inc., Worcester, Mass. This improved system is designed to eliminate handling of star gears which have to be changed to suit the various sizes of printing rollers. In this way, it is pointed out, there is no occasion for the printer to use the star gear which is already on the machine and run the box gears out of proper mesh. Other advantages cited are that a collection of spare star gears is no longer needed; expedients, such as changing the height of the cylinder, making mongrel sized gear fittings, or mis-aligning the drive shaft, are unnecessary; and valuable savings in time are effected in print rooms where frequent changes of pattern have to be made.

The STS system consists of a series of small intermediate gears of laminated construction to minimize noise, all mounted in a segment framework which can be swivelled about the center of the star gear. The mesh between these small gears and the star gear is always correct, and presents no additional hazard because of its being completely guarded. As the print rollers are changed in size, these intermediate gears

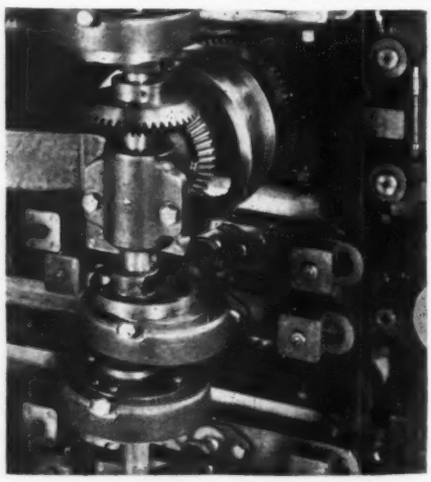


Fig. 2. Improved eccentric motion on tape condenser

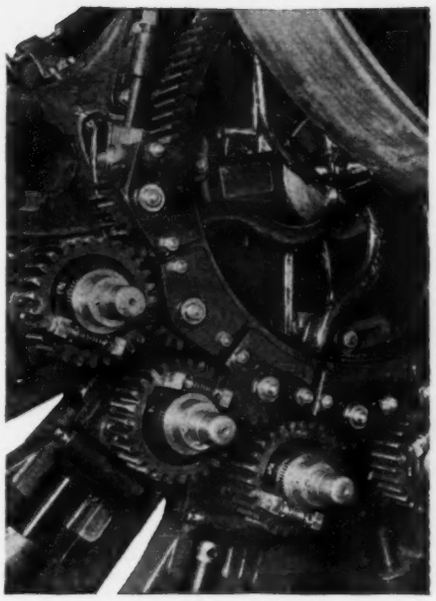
can be brought into mesh with the fitting gears on the mandrels, simply by rotating the gear frame. Substantially constructed adjusting screws are provided for this purpose, and rugged anchor bolts hold the gear frame firmly against the printing machine side frame. Gear teeth, of standard form are used, thus enabling the machine builder to standardize on replacement parts.

Silent Chain Used in Spring Bending

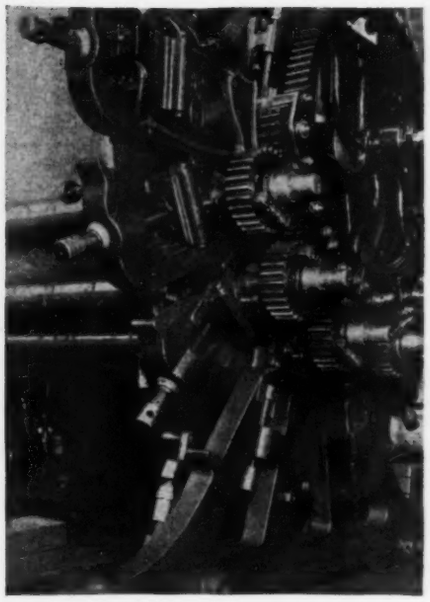
USE of silent chain as a backstop in home-made spring-bending machines is an unusual application of this product announced recently by the Link Belt Co., 910 S. Michigan Ave., Chicago. The chain is stretched across the table of the machine by means of weights attached to the end. When it is time to bend the iron, the red-hot spring is placed against the chain, and the die is pushed up against the spring by pneumatic pressure. The spring is given the desired form, and the chain, acting as a backstop, made no mark on the red-hot iron.

Portable Reel for Strapping

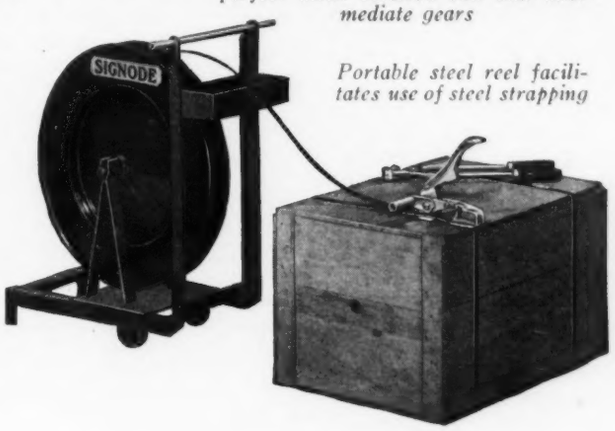
TO AID in the speeding up of shipping-department work, the Signode Steel Strapping Co., 2622 North Western Ave., Chicago, has brought out a portable reel for steel strapping. The reel is of strong, sturdy steel construction designed to withstand all kinds of use and abuse without damage. It has light, fast-rolling casters for easy movement from place to place. The reel is quickly reloaded with strapping by simply loosening one bolt; the cylinder then opens to receive the new coil. A positive clip holds the strapping when not in use and avoids loosening or tangling. The hub is used for a brake.



Close-up of new gear system to show perfect mesh between box and intermediate gears



STS gear system applied to an eight-color printing machine



Portable steel reel facilitates use of steel strapping

New Dyestuffs

PONTAMINE FAST ORANGE WS, a direct dyestuff yielding clear, rich shades of orange, is announced by E. I. du Pont de Nemours & Co., Wilmington, Del. This product is recommended for the production of brilliant reddish orange shades on all types of cotton, rayon, and pure silk. It also finds some application on silk and wool materials, because of its brilliancy and ease of dyeing. It is redder and brighter than PONTAMINE FAST ORANGE S, and is characterized by its excellent solubility. This color produces shades of similar fastness to those obtained with PONTAMINE FAST ORANGE S, showing good resistance to light, acids, alkalis, water, perspiration, iron, and rubbing, and fairly good fastness to washing.

ANTHRENE NAVY BLUE 3B double paste fine is one of three dyestuffs introduced recently by Newport Chemical Works, Inc., Passaic, N. J. This is a vat color for printing or dyeing cotton, rayon or pure silk. Cotton cloth may be dyed on the pad by the pigment padding methods. The color is also suitable for all types of machine dyeing. Its most important feature is its suitability for textile printing, either as a self color or in combination with other fine pastes of Anthrene colors. It possesses very good fastness to chlorine and to hot pressing, and is also fast to steaming and perspiration. It does not discharge.

ANTHRENE BRILLIANT VIOLET 2B, the second product, like the redder and brighter ANTHRENE BRILLIANT VIOLET R, is characterized by ease of reduction, stability of the reduced vat, and good leveling and penetrating properties. It is a finely divided color paste, and hence is suitable for printing, as well as dyeing by the pigment padding method. The general fastness properties are very good. The fastness to boiling soap is good. When dyed as a ground color, white discharge patterns may be obtained. In addition to its use for dyeing cotton in all types of machines, it is also recommended for dyeing and printing on rayon.

CELANTHRENE VIOLET B, the third of the Newport colors, is of especial interest for dyeing acetate yarns, lining materials, dress goods, and knitted fabrics. It will leave cotton and rayon clean in materials containing these fibers, which is particularly of interest for dyeing hosiery or other materials in which these fibers are present. Novelty effects can be obtained in one bath by a selection of suitable direct colors. It is not dischargeable.

NAPHTOL AS-LT, a new member of the Naphtol series, has been placed on the market by General Dyestuff Corp., 230 Fifth Ave., New York. In combination with FAST RED TR BASE, NAPHTOL AS-LT yields a bright, brilliant red with a blue cast. This shade possesses very good fastness to light, excellent fastness to chlorine, and very good fastness to caustic soda boiling. In conjunction with other bases, NAPHTOL AS-LT yields shades of very good fastness to light. Among these, the new product coupled with FAST BLUE BB (base or salt) deserves special attention, as it produces rich shades of navy blue of very good fastness to light and boiling caustic and in addition this dyestuff possesses the other general fastness properties.

CELLITON FAST BLUE R, another General Dyestuff product, is recommended for dyeing and printing acetate yarns and fabrics. Owing to its very good affinity, it is possible with this brand to produce fuller sky-blue shades than are obtainable with CELLITON FAST BLUE B and BB. At the same time, these shades are of better fastness to light than those dyed with CELLITON BLUE extra. The powder is best mixed to a paste by sprinkling into warm water at 105 to 120 deg. F., dyeing being carried out in the same way as with the other brands of this group. The dyeings have good to very good fastness to light; excellent fastness to scrooping acid, and stoving; very good fastness to water, washing, and alkali; and good fastness to perspiration.

Questions... *and* Answers

Twisting Rayon and Worsted

Technical Editor:

We should like to know if you have any information available as to methods of twisting 1/50 worsted with 100-denier rayon to use for full-fashioned hosiery knitting. (7613)

Twisting of 1/50s worsted and 100-denier rayon for use in full-fashioned hosiery may of course be done in the usual manner on the twister. A more economical method is to eliminate the extra twisting process by using the worsted spinning frame as a twister, combining both the spinning and twisting in one operation. To do this it is necessary to have the master mechanic install a rack with the same number of dead spindles or spikes as there are spindles on the spinning frame; locating this rack just over the head of the operator and attaching it to the frame by means of supporting arms. Between this rack and the front roll, it will be necessary to install tension rods or wires, connected to the arms. Over the position occupied by the carriers should be located a wooden bar, running the length of the frame, containing as many pig-tail screws as there are spindles. This is a very inexpensive method of rigging up the spinning frame for use as a twister.

In operation the individual spools of rayon are placed on the spikes of the rack. The ends are then passed up over the tension rods, the first of which must of course be placed so that the end of rayon will be drawn smoothly and evenly from the supply. The rayon end then passes under the next tension rod and through the pig-tail screws, joining the worsted end under the front roller. Twist is inserted by the spindle in both the worsted roving and rayon at the same time, effecting a considerable saving in cost.

Should a ratinee effect be desired, the bar containing the pig-tails may be offset, allowing the rayon to feed directly to the worsted end as it emerges from the front roll. In this case different effects can be obtained by varying the tension on the rayon end.

Much of the success in producing an evenly twisted ply yarn of rayon and worsted on twisters depends upon the tensile strength of both the single worsted and the rayon yarn. Neither the worsted nor the rayon yarn must be twisted in the spinning process with excessive turns per inch, as this will cause the single yarn to kink upon being drawn from the tubes or cones on the creel in the twisting operation.

We should advise using about 19 to 20 turns of twist, taking into consideration that 100-denier rayon yarn is equivalent to 1/79s worsted yarn in size.

The rayon yarn has a tendency to slip through the twisting rollers, especially if the yarn has been tightly twisted at the spinning process. The formation of long and short kinks must be avoided in making this yarn for any purpose, knitting or weaving. On single-roll twisters of the Collins type a very simple method, which has been found to produce good results, is to place a ½-in. cold-rolled steel rod directly behind the guides leading into the rollers. The rayon is passed under this rod, which gives it a very slight tension and prevents it from slipping through the rollers faster than the worsted thread. Tension may be increased or decreased by raising or lowering the rod without in any way causing the breaking of the rayon or any other very fine yarn which may be used.

Extreme care must also be taken in selecting the proper size of traveler. A 2-in. ring is preferable. If the twister frame is not equipped with runners and the yarns are being delivered from bobbins, care must be taken to hold back the rayon thread by means of very light felt washers.

▼

Cotton for Typewriter Ribbon

Technical Editor:

The writer has heard quite a little discussion from time to time on the kind of cotton used for the manufacture of typewriter-ribbon fabric. A number of ribbon salesmen maintain that the fiber used in their product is Sea Island cotton. We should greatly appreciate any information you can give us on this subject. (7616)

Very little, if any, Sea Island cotton is finding its way into typewriter ribbons—or into anything else for that matter. Most of the typewriter ribbons, both domestic and imported, are now made of regular Egyptian or Sakellaridis.

▼

Woolen Fabric Uneven in Shade

Technical Editor:

Enclosed you will find two samples of dyed woolen fabric which have the appearance of being dyed unevenly. Can you explain the causes and remedy of this fault?

This fabric was entered into the dye-bath and run cold for 20 minutes. The bath contained dye stuff, glauber salt, and about 1% of acetic acid. As the bath came to the boil, small quantities of acetic acid were added occasionally to the extent in all of about 5%. The bath was brought to the boil very slowly. After boiling for 45 minutes, the bath was apparently clear, and the goods were finished with a little sulfuric acid. (7604)

The streakiness is not caused by uneven dyeing, but is due to irregularity in the fabric itself. This can be easily seen if you will hold the sample right side up, facing the light, and note where the light places occur. Hold the fabric so the light shines through it, and it will be seen that in the lighter portions the texture is close and well filled, while in the dark places the texture is open. If these were woven goods instead of knit, they would be called reedy. Variations in the diameter and twist of the yarn, as well as unequal tension during the knitting, cause this effect. The manufacturers of knitting machines can probably aid you in the adjustment of your knitting machines to overcome this defect.

▼

Knitting Astrakhan

Technical Editor:

We should appreciate your giving us full information on how to make astrakhan on 18-gauge machines. We wish to know the cut of the backing wheel, the yarns to be used, and the width in relation to cylinder. (7619)

It is a practical impossibility to give any one standard method of manufacturing astrakhan, as various arrangements are used by different mills. It is a double-plush fabric, using a face yarn, a binder thread, and a heavy astrakhan backing yarn. Some mills make an all-wool fabric, while others use cotton for face and binder, and worsted for backing. Either a three-and-one or two-and-one blocked backing wheel is desirable for tying-in. Probably the two-and-one gives the

more efficient binding of the backing yarn.

Yarn sizes for this gauge depend upon the weight of fabric desired. Generally, the backing ranges from ½s to 2s (cotton counts); the face yarn, from 2/18s to 2/26s; and the binder, from 1/18s to 1/26s. If a really heavy astrakhan yarn is used, it need be put on only every third feed, the intervening feeds being plain knitting. The more common method, however, has every other feed double plush and the alternate feeds plain.

A 35-in. cylinder is the proper size for a fabric which is to be finished to standard width.

The different yarns should not be difficult to procure, but it must be known whether cotton or wool is to be used. The face and binder threads are standard yarns, while the different types of astrakhan yarns are classified under novelties.

▼

Barré Effect in Canton Crepe

Technical Editor:

I am enclosing a sample of Canton crepe filled with three-thread 20/22 Canton filling. Upon examination this swatch of goods against the light, you will notice that it shows a barré effect. You will also notice that the picks are distributed evenly where it shows this effect, as well as in the perfect parts of the goods. We should like to have your opinion as to the cause of the trouble and also the probable method of eliminating it. (7606)

We are inclined to place the blame in this case on the raw silk which the throwster used to make his thread. The designation 20/22 means that the denier of the raw silk might vary between 20 and 22 deniers, but unfortunately it often happens that parts of a skein of raw silk will fall below or exceed the given figures. Even in a three-thread tram, the inequalities will generally compensate, so that the final twist will be reasonably uniform; but there will be times when all the threads will be either lighter or heavier than the given denier for a certain space, and of course will show this plainly in the woven goods. You will note that each barré is preceded by an exceptionally heavy thread, and that the irregular threads are present throughout the goods in much too high a proportion to class it as a high-grade tram. Hosiery knitters are always contending with this difficulty with their four- and five-thread trams, and only get really good threads in ten- and twelve-thread trams. We suggest that you have your filling reported on by a regular silk testing company and that you show the report to the throwster. There is nothing you can do in the weaving which will remedy the trouble. You will also note that the warp is very irregular, but this of course does not show on the surface of the fabric.

Men's Socks Vary in Length

Technical Editor:

We are throwsters of combination yarns for the men's half-hose trade and have recently had a serious complaint from one of our customers, who claims that our yarns give him an excessive number of long and short socks. The sample enclosed is an example.

The combination is one end of 150-denier rayon and one end of 75-denier acetate. The variations in size of the yarn have not shown an excess of 10 deniers (230 to 240 deniers); and the twist, supposed to be 4½ turns left, has also shown no variations such as could be responsible for such large differences in the length of the stockings.

We believe that the trouble could be overcome by adjusting the knitting machines, but are not sufficiently experienced in knitting to express a firm opinion. We should appreciate your analysis and opinion. (7595)

We have examined the samples of heather-mixture half hose. Both the long and short socks contain the same number of courses, but vary in the number of courses per inch, as follows:

Courses per inch in leg: short, 36; long, 28.
Courses per inch in foot: short, 36; long, 24.

With the information available we are able to suggest several possible causes of this difficulty. In the first place, we can definitely state that the variation does not come from lack of uniformity in twist or denier number of the yarn. So far as these factors are concerned, the yarn is of a very good quality. Differences in the amount of moisture in the yarn, however, may be responsible for the difficulty. It is generally known that moist yarn will make a shorter sock than dry yarn. It is possible that in preparing this yarn for the knitter, the throwster added moisture by conditioning, and evaporation of moisture from the outside of the packages caused a difference in the amount present in its various parts. Differences existing in the amount of conditioning oil may cause a similar variation in length.

We recommend thorough drying of the yarn before coning. More accurate control of sizes is gained by the use of disk tension devices. It is better to run the yarn under tension and set the machine for a slightly longer stitch than to depend on the drag of the yarn in unwinding to furnish the required tension. This arrangement makes the stitch formation more positive and results in more even work. The rayon yarns are best knitted with from 4 to 6% of oil present on the fiber. This is especially desirable for acetate yarns, which have a high frictional resistance.

Atmospheric changes cause variations in length. For this reason a machine often produces a shorter sock at night when the air is moist. Temperature is also a factor in size control. Accurate inspection and sizing of the work every several hours on each machine is absolutely necessary in order to secure uniform sizes.

Inquiries should give the fullest information possible; and if damaged material is involved, a sample should be sent. We give no consideration to anonymous inquiries and do not undertake routine analysis of yarn or fabric, or investigation involving unusual expense.

▼

Stains in Bleached Flannel

Technical Editor:

Enclosed are two pieces of bleached flannel. In each of these samples you will note a small blue stain, which is caused by a blue fiber. Enclosed also is a piece of folded paper in which are some of the fibers taken out of the stock. This stock is fine white garnetted threads.

We are having considerable trouble with those blue stains showing in our goods, finding them scattered throughout the piece. Some will be about twice the size of a pinhead, and others will run an inch long. We have tried scouring the goods before fulling, but the stain does not develop until after the goods are fulled. Bleaching does not take it out. We can strip it out after fulling, but that necessitates extra handling, and makes the goods feel harsh. Will you suggest something that we can do to fasten this color so that it will not stain into our whites; also advise the nature of the fiber. (7598)

When stock is a garnetted waste, fibers which cause trouble of this sort often are either silk or rayon. Again, when color appears in a garnetted waste, it is sometimes caused from decorative yarn or yarns used to mark the selvage. In sorting the threads some of the colored fibers are missed. If the garnetted stock is made from a spinning-mill waste, the trouble is due to carelessness on the part of the help. In this case, however, a miscroscopic examination shows that the blue fibers are wool of the same grade as are the white fibers.

We suggest that you full the goods with an almost neutral soap solution containing not over 1 oz. of soda ash per gal. This will tend to eliminate any bleeding of the fibers, and they can be picked out at the perch without leaving a stain. If necessary, you might add a small amount of ammonia or soda ash in scouring. Use of warm soap should be avoided as this will also move the color.

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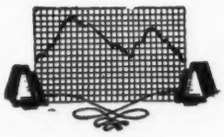


Doubtful Whether Raw Silk Can Hold Above $2.50

By Dr. L. H. Haney

IT SHOULD be entirely apparent that the run-up in silk prices in the latter part of June was purely speculative and based largely on "short covering." Not only was there speculative short covering, but the mills had bought sparingly and spot interests had made hedge sales, so that the silk markets were susceptible to a bull drive. Apparently the excitement in Japan was touched off by (1) a decrease in the cocoon crop, (2) an advance in cocoon prices, (3) talk of some plan to dispose of the surplus silk, (4) the moratorium proposal and the accompanying rise in silver exchange, (5) the decline in the "free stocks" immediately available.

But Japanese farmers are likely to produce more silk as a result of the advance in price, and the higher prices here are certain to lead to a greater use of rayon. Much silk machinery would probably be shifted back to rayon for weaving and knitting purposes with silk above $2.50. The strong resistance to higher silk prices displayed by the manufacturers is real and based on the dull goods markets and low profit margins. (While these conditions may be partly the manufacturers' own fault, the existence of a competitive situation in the goods markets must be reckoned with for the present.)

It seems doubtful, therefore, if raw silk can hold above $2.50, although at the same time (in view of the cocoon situation) it seems unlikely that the price will have to fall to new low levels.

Bull Points

1. World production and consumption are in better balance than a year ago.
2. Japanese cocoon crops this year will be considerably reduced (perhaps 20% altogether) and the poor supply of mulberry leaves suggests reduced net silk content per cocoon; the Chinese cocoon crop is disappointing; the French crop is much under a year ago, and Italian production about 10% lower.
3. Higher cocoon prices appear to be definitely established.
4. Some progress reported toward the adoption of plans for disposing of the custody silk.
5. Increased domestic demand in Japan.
6. United States spindle activity decreased less than usual in May.
7. Some real improvement in the demand for hosiery yarns as better buying of new type hosiery develops and excess stocks of hosiery decline.
8. Stocks of silk goods on May 31 were 11% lower than a year ago.
9. An increased use of ribbons in women's wear is reported.
10. Silk goods sales (yards) appear to be in line with broad loom activity and the decline in the latter indicates cautious production by most mills. The strike continues. Most mills are believed to have reduced their stocks of goods. Plans are under way looking toward stabilization and rationalization of the industry.
11. Higher silver exchange.

Bear Points

1. World production and consumption are not in as good balance as at the beginning of June; the National Raw Silk Exchange estimates production still to be in excess of consumption.
2. Arrivals from the Japanese filatures have increased recently and are exceeding shipments, so that stocks are accumulating again in Japan.
3. Stocks at New York increased in June and imports were large in comparison with estimated deliveries to mills.
4. "Deliveries" were considerably above their average relationship with the activity of spindles and broad looms in May and probably in June, indicating that the withdrawals were not going into consumption.
5. Deliveries in June declined more than seasonally.
6. Stocks of silk goods (yards) increased a little in May, and considerable dumping by mills indicates overproduction.
7. Sales of silk goods (yards) in May decreased 30%, which is more than usual for the season, and were 9.6% below a year ago (while in the first five months they were only 4.5% below the same period last year); pronounced

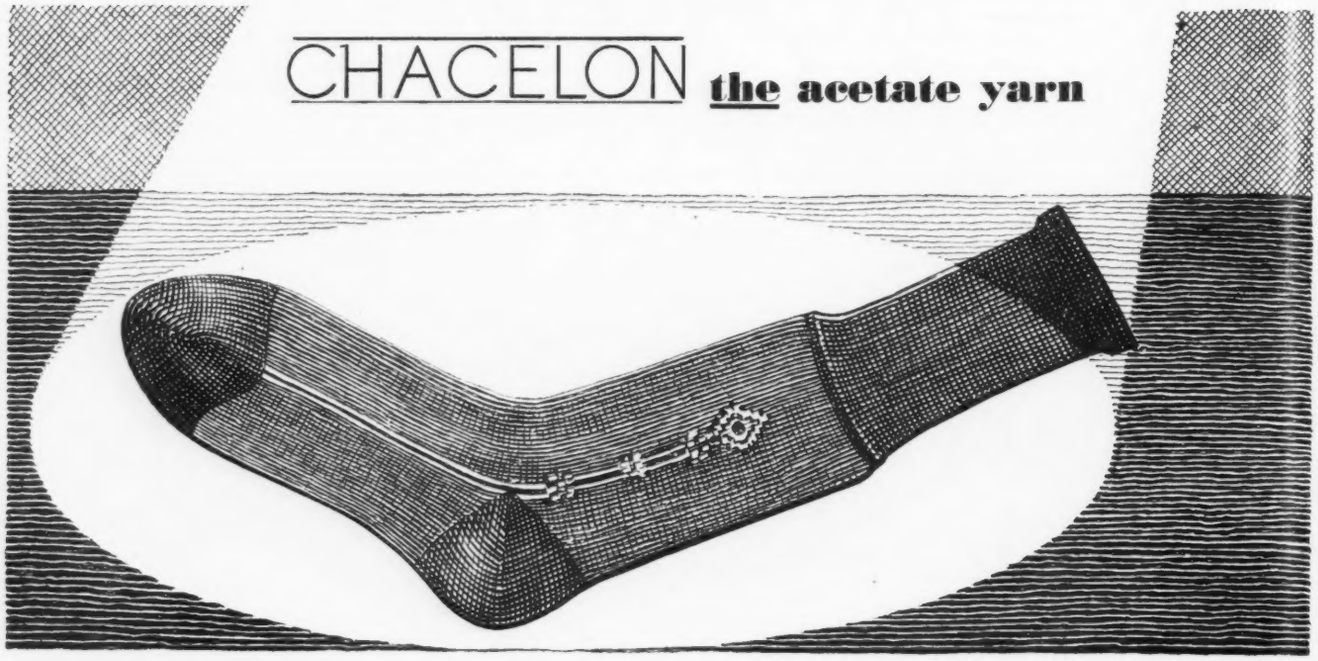
●

Summary: **The world statistical position of raw silk is improving, but it is not good. The run-up in silk prices during the last month was largely speculative, and manufacturers display stronger resistance to higher silk prices. The market is too weak to withstand disposal of the Japanese custody stocks. It is doubtful if silk can hold above $2.50, although at the present time new low prices seem improbable.**

Silk goods sales have slumped and price cutting continues.

The analysis and forecast by Dr. Lewis H. Haney, director, New York University, Business Research Bureau, which regularly appears on this page, considers various branches of the textile industry from week to week. The conclusions reached in the Analyst are mostly forecasts and generally apply to a time two or three months ahead. The Analyst is based on statistical data and does not reflect temporary trade sentiment.

CHACELON **the acetate yarn**



The tremendous success of popular-priced fancy half-hose throws the spotlight on the superiority of Chacelon acetate yarn. For Chacelon is playing a leading role . . . making possible a record-breaking volume production.

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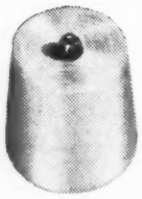
Through these advantages which contribute to efficient mill operation, volume-selling and ease of handling, Chacelon presents to hosiery manufacturers a seldom-equalled opportunity. The technical staff of this company is prepared to give complete, immediate information and assistance to hosiery-mill executives interested in the profit possibilities of Chacelon acetate yarn.

CHACELON
IS A TUBIZE PRODUCT



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seasonal dullness continues; yarns for broad silks are reported very dull.

One must conclude that the more substantial and positive statistical factors are not conducive to strength in the silk market. The world statistical position may be improving, but it is not yet good. The most substantial bull point is the reduction in the cocoon crop which appears to be almost world-wide, but with the existing large stocks of raw silk, higher cocoon prices seem more likely to squeeze the filatures than to strengthen the Yokohama or New York markets.

Statistical Position

The largest item in the Silk Association's figure in June was imports. The imports increased, and, except for 1929, were the largest for the month in recent years. It is notable that they were more than double the estimated deliveries for the month. Moreover, the quantity in transit was large for the season, at 33,400 bales, being more than 17,000 bales above June, 1930.

Naturally, the quantity in storage increased. The stocks are not unusually large, though about 9,000 bales above a year ago and nearly 5,000 bales over the preceding month. This, however, is only about 89% of the estimated deliveries, which is quite normal. The chief question concerns the trend since the end of June, an increase being suggested by the sizable quantity then in transit.

Of course, the quantity withdrawn from storage and supposedly delivered to mills could not have been large. The "deliveries" were 42,161 bales which, although 43% above last year, is about 4,000 bales less than in June of 1928 or 1929, and below the average annual rate in the years 1927-29. Moreover, the June decrease in deliveries was greater than usual for the season.

The total stocks at New York and Yokohama at the end of June were over 128,000 bales and the average for the last three months has been over 131,000 bales. This represents a less-than-seasonal decrease and is 162% above the average of recent years. On the other hand, domestic machinery activity is more than 10% below average. It is, therefore, apparent that the stocks of silk are extremely excessive in comparison with mill consumption.

The world visible supply (including other than Japanese silk at New York) at the end of June was 197,052 bales. This is a decrease from May, but is more than 8,000 bales above a year ago and is very large. There was no reduction in the silk withheld from the market in Japan during the month, the figure remaining at 109,300 bales.

The price of Cracks XX in June averaged approximately $2.37. This compares with $2.32 in May, and $3.42 a year ago. The small increase over May represents the first increase in the monthly average since last January. But the June average was the lowest for any month except May in many years. Even in October and November last year, the averages were about $2.48. Moreover, the small gain in the June average was due to a speculative spurt near end of the month largely due to short covering.

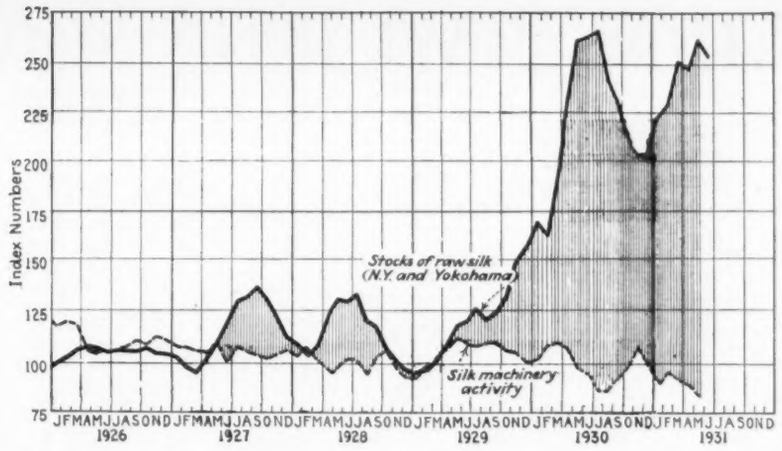


Fig. 1. RAW SILK STOCKS AND MACHINERY ACTIVITY. Stocks—N. Y. and Yokohama, adjusted for seasonal variation, three month moving average; N. Y. Stocks, Silk Association; Yokohama Stocks, H. L. Gwalter & Co. Machinery Activity—Composite of spindles and looms adjusted for seasonal variation, Silk Association. Average, 1923-1927 = 100 for both indexes.

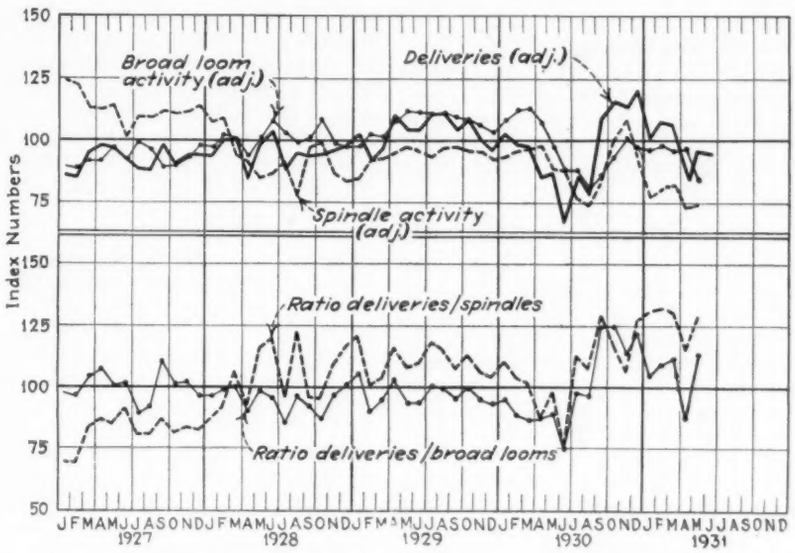


Fig. 2. INDICATED SILK CONSUMPTION. Deliveries—bales; Spindle Activity, Broad Loom Activity—per cent of normal machine hours operated. All three indexes adjusted for seasonal variation. Ratio of Deliveries to Spindles and Ratio of Deliveries to Broad Looms based on above indexes. Average of 1927-1929 = 100 for all indexes. Source: Silk Association of America

Meanwhile, the silk goods business does not make a very favorable showing. Not only was there a 30% decline in yardage sold at wholesale, but also a much sharper drop in dollar sales. In the New York district the value of wholesale sales was off nearly 50% from April,—probably the largest percentage of decline for any month in recent years except the very bad month of April, 1927. It is to be remembered that these are wholesale sales, and it is reasonable to suppose that they anticipate a let-down in retail sales in June and possibly July. Obviously, they reflect wide-spread and drastic price cutting. The sharp curtailment in broad-loom activity in May can be considered favorably as representing a tendency to restore the equilibrium of the supply and demand situation in broad silks. Certainly it shows that the mills are operating with due regard to market conditions. At the same time, however, it tends to reduce the demand for raw silk and, with the sales off so sharply, it suggests that any weakening in raw silk would likely affect goods prices.

Spindle activity is well maintained, possibly reflecting some improvement in the hosiery situation. Demand from knitting mills appears to be holding up fairly well, and some good business has been done by ribbon mills. But spindle activity is very low, both absolutely and in comparison with estimated deliveries of silk to the mills. It is, therefore, doubtful if the lowness of supplies of silk held by mills, as reported in some quarters, really exists. At least there is plenty of silk available somewhere.

On the whole, the silk situation looks like a reaction in raw silk prices which will probably hold goods prices down pending the house cleaning in the manufacturing industry which is hoped for.

YARNS AND RAW MATERIALS

TEXTILE WORLD ANALYST

◆Cotton Yarns Wait For Developments

ACTIVE interest in cotton yarns has fallen off following the decline in cotton attendant upon disquieting reports received from Germany and Europe and the acreage figures. No special effort is being made to force sales at this time. The situation is regarded as confusing, and there is a disposition to wait and size things up before pursuing any new active policy, either as to prices or selling.

The previous rapid advance in cotton had doubtless been overdone, but, following that rise there was a good volume of yarn business closed in June. Much of this summer business is ordinarily placed around the middle of July, and the June movement apparently merely anticipated the usual mid-summer activity. July so far has been comparatively quiet.

As previously noted, yarn prices did not advance so rapidly as cotton, and many sales were noted in which the spinner, with higher cotton costs, was not so well off as on previous trades. Nevertheless sales put through at the time resulted in filling mills' books with a volume of orders which will keep them engaged for some time. This condition, coupled with the curtailment programs actively in force with many spinners and the summer vacations, all tend to make more acute the problems of available yarn stocks which are low at first hands and limit the material available for prompt delivery. An indication of the situation is given by the experience of a buyer who came into the market for 24 warps of 20s-2. He was unable to secure them from any one house, but was compelled to scour the market before he found three houses who could make up this quantity. In two cases it cleaned up the available stock on this count. Spinners quote 19 to 21c. for this yarn. One spinner has refused to sell any of his yarn on hand at less than 21c.; however, sales in Philadelphia are noted 18½ to 19c.

Sales made at present call for prompt delivery. There is little interest in 30s-2 warps at 24c.; occasional sales are noted in carded knitting yarns, with 10s at 16½ to 17c.; a sale of 28s was made at 23¼c. However, prices are practically nominal at this writing as there is not a sufficient volume of business to establish prices on a definite basis.

Combed and mercerized yarns also are affected by the weakness developed in cotton. There was a nice volume of business under consideration for contracts ahead, but negotiations are now off and it is probable actual purchases will be deferred until fall. Specifications against contracts continue to be rather poor. The mid-summer dullness prevails with no change in quoted prices. At this season of the year the market is always watching weather conditions and their effect upon the cotton crop, so sudden turns overnight are not impossible.

◆Cotton Market Lower Under Liquidation

THE cotton market during the week has been under the shadow of the German financial situation. This has had an unsettling effect on all markets, and coming on the heel of the late June advance on the international debt moratorium proposition, has found the cotton market in rather a susceptible condition, particularly as there have been some beneficial rains in the South and a feeling has prevailed that the crop was making fairly good progress. A good part of the late June advance was lost but the decline brought in some scale-down buying for trade and possibly some investment buying, as well as covering promoted by a feeling that relief measures for Germany would soon be decided upon. October contracts which had sold up to 10.70 on the late June advance compared with 8.53 the low record touched on June 8 were back to the 9c. level toward the end of this week or within ½c. or so of the season's low records.

Market Briefs

Cotton: *Still weak on European bank problems and acreage report.*

Cotton Yarns: *Inactive market as buyers loose confidence and sellers hold firm.*

Cotton Goods: *Quiet with second hand selling featured in gray goods.*

Wool: *Good market maintained on wide range of wools.*

Worsted Yarns: *Firm with steady interest; spinners hesitate to sell far ahead.*

Woolen Goods: *Men's suitings active; semi-staples favored.*

Silk: *High levels deadlock buying; 20/22s drop 5c.*

Silk Yarns: *Better call for spun yarns; thrown silk quiet.*

Silk Goods: *Mills hesitant about raising prices. Slightly stronger tone.*

Rayon: *Producers fear low yarn stocks may mean lost business in fall.*

Knit Goods: *Bathing-suit demand wanes; medium-weight underwear active; less interest in low-priced mesh hosiery.*

Traders are paying comparatively little attention to ordinary cotton market factors while conditions abroad are so unsettled. It is doubtful, however, whether these routine influences would have inspired much fresh buying had conditions abroad been more known. Weather conditions as noted above have been more favorable for the development of the crop, leading to expectations of fairly satisfactory end-August condition figures, while statistical developments have strengthened the outlook for a world's end-season carry-over of about 9,000,000 bales. The standard cloth statistics for June were encouraging, and the report of the Census Bureau on domestic consumption and stocks for June showed comparatively light supplies of cotton in consuming establishments at the beginning of July. They amounted, according to the report, to 1,130,514 bales compared with 1,356,664 last year. Lighter stocks of goods as well as of cotton may be regarded as a partial offset to the indicated heavy carry-over of American lint cotton.

According to some reports, the infestation of boll weevil has increased somewhat during the week in some sections of the belt. Boll weevil spread was restricted by the high temperatures of late June, but recent rains pulled the temperatures down somewhat, and it has been more like boll weevil weather. At the same time it may be said in a general way that there are fewer complaints being received from the crop so far than is usual at this season of the year. Nevertheless, there is the reduction in the use of fertilizer which may still show during the fruiting season, and a possibility that the boll weevil will figure more largely in the news during August.

Domestic consumption for the month of June amounted to 455,388 bales compared with 405,236 last year and exports were 255,459 compared with 185,053 last year. These figures are showing about the anticipated increase over last year's, but it is considered doubtful whether the world's consumption of American lint cotton will run over 11,100,000 to possibly 11,200,000 bales for this season compared with 13,023,000 for the season ended July 31, 1930.

Toward the close of this week, spot demand was said to be picking up again somewhat and there was some buying by Germany. A little more cotton came out on the recent advance and some easing of the basis has been reported during the last week, but there has been no evidence of weakness or selling pressure, otherwise.

Southern Trade Quiet

MEMPHIS, TENN., July 13.—Business in the cotton market here was close to a standstill during the week, owing

largely to near-exhaustion of supplies in first hands but quite definitely to lack of buying interest. Merchants with full stocks are perhaps doing much more business than purchases at first hand would indicate, but spinners are buying sparingly for immediate shipment and new crop inquiry has dropped off to almost nothing.

Small Volume of Business

Merchants appear more relieved than disappointed that no important volume of forward business is being placed. They are quite as willing as the spinner to await more light on the crop, and, although an optimistic feeling prevails, to watch business developments rather than attempt to exercise prophetic vision. Owners of wanted cottons are holding firm for flat prices which declines in contract values during the week made impossible. Owners, however, feel that they will get their price, because of scarcity, before the new crop begins to move. Sales during the week totaled 1,842 bales against 3,144 last year and 5,861 the year before, making 723,779 bales for the season against 1,011,574 last year and 972,844 the year before. The outward movement was about on a level with last year and considerably ahead of the year before.

The crop in this territory is growing rapidly, as a result of recent beneficial rains; the plant is no longer undersized and is squaring and blooming freely. Government's acreage estimate for States of which this territory is part, was about as expected.

◆Cotton Wastes Dull; Prices Nominal

MORE than the usual summer dullness exists in the cotton waste market. Values of good wastes are on the lowest basis for years but this does not seem to have any effect in creating any large demand. Waste dealers and users generally are following the situation in raw cotton very closely, and, until the outlook for the new crop can be more definitely forecast, neither will operate very freely in the waste market.

The demand for peeler and upland strips, which has featured the market for some time, continued fairly good this week, some choice lots of peeler strips selling at the same price as peeler comber. Domestic demand for the latter is spotty but there has been good-size buying of this waste for foreign account during the last three or four weeks. Recently over 7,000 bales of comber were shipped to England, further reducing unsold stocks in the hands of dealers. Prices on all wastes are nominal and the trend is in the buyer's favor.

◆Worsted Yarns Hold Firmer Prices

CONTINUED strength in wool prices has contributed firmness to the attitude of spinners. Prices have shown no material advance, but a more independent position is taken in quoting. This attitude is based upon a conviction that wool prices are to maintain a firmer basis, with even possible advances, and spinners feel there is no occasion to incur losses on yarn sales. The same policy tends to restrict sales to comparatively nearby deliveries. There is no desire to sell too far ahead, and the average spinner would prefer to sell 5,000 lb. than take a contract for 50,000 lb. running ahead for some months, with risks attendant upon a possible rise in wool. The present activity, confined to comparatively small sales from day to day, is regarded as the most satisfactory basis on which to operate.

There is, however, no special demand noted at this time. The tone of the market continues with a better feeling, although naturally there is some concern as to further developments in European financial conditions. Some tendency is reported on the part of certain factors to turn from yarns of 64s quality to so-called "near zephyr" yarns for knitting, in 58s to 60s grade. It was this attitude which has brought about the development of the single 18s slub-dyed in a medium quarter-blood, or 48s to 50s, at 92½ to 95c., made from a special grade, and differing from the usual standards offered by other spinners who are not meeting this low price. Some sizable business is said to have been placed on these yarns for sweater coats, and a possibility of an advance in price is already strongly hinted.

Other knitters continue to show interest in the standard "zephyr yarns" for infants' wear and sweaters. Bathing suits are reported still to be active with some manufacturers, and enough business is coming in at this belated day, to give rise to complaints of interference with operations on sweaters. This situation is attributed to shortage of goods due to extreme delays in getting this season under way in the spring.

A few dress goods manufacturers are reported operating on business recently booked. Others, however, are still waiting to hear from their samples. Therefore conditions in this branch are still much scattered, although optimism is prevalent. Some business is reported on woolen crepe yarns in single 30s cut plain, with prices from $1.00 to $1.10 according to grade and quality. Others are operating on fancy yarns, but here the range of sampling is so broad that it is difficult to say as yet just what is to be the ruling type.

Jersey cloth manufacturers are still reported active, and quite good business is being done on these yarns. Single 26s, 64s quality, are taken at around $1.12, although yarns in lower grades have also been taken at a lower price in an effort to make a cheaper priced line. Many manufacturers have not shown any interest in anything but standard grades, preferring to maintain their quality product. Jersey cloth is said to be going into bathing suits and sports suits which have been so popular.

◆Wool Market Very Firm

IN ALL quarters of the wool market there are smiles and statements that the market is very firm. While actual sales are not so large as in the last two weeks, this was to be expected and the wool houses are busy arranging for deliveries on orders previously taken. The feeling is general that the bottom has been passed.

An encouraging factor is that demand has broadened. Where previously fine wools dominated the situation, quarter-bloods are now being moved and prices have strengthened, territory quarter-blood being up about 1¾c. per lb., placing the brackets at 47 to 50c. for the scoured wool. Three-eighths bloods have firmed and are also held at 47 to 50c. Fleece wools are in more active demand than territories and prices of fine delaine are firmer than ever at 25½ to 26½c. in the grease, while three-eighths and quarter-bloods have moved up ½ to ¾c. per lb.

The western market has reflected the better situation. With most of the other States cleaned up, buying centers on Montana where prices of 15 to 19c. prevail.

Little Reaction to London Sales

The fourth series of London auctions has had little effect on the domestic situation, due to the fact that the domestic market is now in a position so much below the importing price that it acts independently. The auctions started with losses of from par to 15%. Since then, however, there has been some recovery, and 60s, 64s and 70s were at the same level as the end of the May sales. Scoured combing merinos were 5 to 7% lower. No buying for American account has been reported.

Consumption Report in Error

Report from the Department of Commerce, placing May wool consumption at 52,199,000 lb., grease equivalent, has been corrected to 44,966,000 lb. The largest error occurred in carpet wools

which were originally reported as 16,093,000 lb., while the correction now places consumption at 8,859,000 lb. The revision makes the May consumption less than the April total of 47,710,000 lb., but still above the average for the month established by previous years.

The top market showed some signs of lagging behind the wool market, but the tendency is being corrected as buyers become aware of the delivery situation and spend less time dickering with several houses, enabling sellers to keep a firmer front. Asking price for 64-66s is 87c. and there are fewer lots available at the lower end of the price range. The top futures market hit a new high of 75.50 for September last week, but had eased to 73.00 by Wednesday of this week. With Boston spots holding firm around the 80c. level there is interest in what will happen as September delivery date nears. Buyers will call for delivery unless the disparity is ironed out either by a rise in the top futures market or a drop in the Boston market.

A few signs of life were seen in carpet wools, although actual transactions are limited. Prices are steady.

◆Rags, Reworks, Wastes More Hopeful

WOOLEN rags and reworks have met with better demand and fair quantities are being moved, although the general situation is still slow. The feeling is spreading that there will be a pick-up in woolen manufacturing and several manufacturers are said to be cautiously purchasing raw materials in anticipation.

Prices remain unchanged with white knits most in demand.

Wastes are moving more freely than previously with demand centering on thread wastes. A few large lots have been sold, but prices have not been very satisfactory. There is some apprehension that spinning activity will increase stocks of waste, particularly white wastes, but several factors give their opinion that demand will develop before the situation is distressing. In the case of noils, however, it is obvious that the stocks in hand are more than ample and prices continue to soften. Fortunately, dealers are inclined to sit back and wait developments rather than exert useless and ungoverned selling pressure.

With a firm wool market manufacturers will be inclined to expect better prices for their wastes, whereas dealers believe that they must purchase at low rates if they are to move the lots at resale. The situation warrants attention from top makers and spinners who figure return from waste in calculating costs.

◆Broadsilk Mills Slow To Advance

THERE is a slightly better tone in the broadsilk market, thanks to price advances by some fabric houses last week, but the outlook is not yet clear. A considerable part of the industry is still selling crepe-back satins and cantons for fall at the June levels, and these mills are waiting for the consumer reaction to the increases announced by their competitors. Any perceptible increase in demand from cutters will bring a general upward tightening of quotations, it is believed. At present cutters are covered for immediate requirements, and are seeking delivery; they are still reluctant to buy more than two weeks ahead. Stock production is moderate, however, and continuation of this policy by the weavers, would stimulate advance coverage.

Cantons sell best in green, wine shades and in browns. Satins are important in black, with browns picking up. Transparent velvet demand shows a slight growth, but the real movement has not developed.

Broadsilk factors do not look for any big pick-up before the first of August; this is in-between seasons; retailers are in the market, and shop around actively, placing fair-sized orders, but all of the fill-in variety.

Sentiment regarding fall is better. The issue is mainly one of stocks. If mills hold down on output, demand will do the rest. The consuming groups talk confidently of prospects for the coming season, and weavers are hopeful that fall turnover will help at least to make up for their losses in the first half of the year.

◆High Silk Levels Deadlock Market

PREVAILING high levels in raw silk have virtually deadlocked the market, so far as buying is concerned. Manufacturers placed a negligible quantity of business this week, importers finding it practically impossible to move stocks. Fortunately, for raw silk dealers, there is no large amount of silk in the New York market at present, but even the available stock is sluggish. Futures are pretty much at a standstill, current business consisting of occasional spot calls for infinitesimal shipments. In response to the buyer apathy, 20/22s went off 5c. but this did not excite much interest. Importers do not look for improvement until prices shade off at least 10c. on all grades; the prospects for such a recession are uncertain, though it seems assured that continued lull will break the firmness in Japan.

Fabric weavers are reported to be curtailing fall output, and they follow a rigid non-buying policy as regards raw material. However, with the pick-up in fall fabric movement, expected about Aug. 1, demand for raw silk should be accelerated. The long-term outlook for importers is rather favorable. Neither weavers nor knitters, with the exception of the larger hosiery mills, have any raw stocks on hand. They are operating on a shoestring so far as inventory is concerned, and it may be taken for granted that a moderate decline in raw silk prices, especially if that were accompanied by a pick-up in the call for finished merchandise, would bring a sharp buying spurt in the primary market.

◆Low Rayon Stocks May Cramp Fall Sales

ASSUMING that fall business maintains its usual ratio over spring there is doubt as to whether rayon yarn producers will be able to meet demand. Such a prospect normally should occasion jubilation among producers, as making for a seller's market, but producers are far from happy about it; they see the situation as forecasting much lost business. In some companies, there is a clash between the financial and the selling departments, the former insisting on continuation of the present program of restricted output, and the latter arguing for larger stocks. As a matter of fact, numerous rayon firms are now losing business because they cannot fill orders.

The whole question of fall shortage will inevitably be regarded with skepticism by consuming industries, as it suggests "inspired" rumor; and indeed, the agitation if it is of the high-pressure type, should be taken with a grain of salt. But certain trends at present denote a decided tightening of stocks. Producers are writing more fall business, despite the general inclination in other textiles to buy close to consumption; numerous sizes are sold out and producers frequently are compelled to substitute one yarn for another. One rayon company has increased its output of bright luster 150s nearly 300% in a few weeks. Very few producers have more than three weeks' stock on hand—and that stock includes many broken lots.

The summer lull promises to be much shorter than usual. It is estimated that the seasonal decline for July this year is 20% as against 25% in the same month, last year. Consuming industries, as a whole, are very confident of the fall outlook for their own lines, and a

(*Continued on page 55*)

FABRIC MARKET REPORTS

TEXTILE WORLD ANALYST

◆New Men's Wear Lines To Be Conservative

MEN'S suitings still hold the center of the stage in the woolen and worsted market. Weavers divide their attention between nearby business on fall goods, of which there is considerable, and the planning of their spring lines. Indications are that openings will include few, if any, radically new fabrics; mills are doubtful about the consumer trend, and prefer to play safe by holding to conservative and established styles. Such variations as may be seen will be in subdued tones and the less conspicuous weaves. Manufacturers talk of very late openings; some firms do not plan to show their lines before mid-September.

The present season in suitings is expected to run a good deal later than usual; mills are sold well ahead, and weavers will probably still be selling fall season's goods well into October. Current demand for suitings accents the semi-staples. Plain twill is in good call; in fancies the diamond and herringbone are popular, with basket weave moderately active. Prices are steady.

Suiting weavers see the possibility of stock surplus soon, unless output slackens. Mills are now operating virtually at capacity, and while demand is steady at present, there is little likelihood of business continuing heavy enough to assimilate the very heavy output.

Market sentiment is strong as regards immediate outlook, but hesitant as to long-term. Cutters buy close to production and may be expected to continue doing so for some months.

One observer, discussing the possibility of overproduction said manufacturers would be safe if they restricted that policy to oxfords and such staples, but he strongly counselled against the present tendency to pile up stocks of style lines.

◆Cottons Turn Quieter on Uncertainties

THE quiet tone which followed the spurt of activity in cottons at the end of June has continued into the present week. Raw cotton has not given buyers of goods any encouraging foundation for confidence and the uncertainty is likely to continue until sentiment in the raw material market changes or until scant stocks of goods in the hands of distributors force a return to the market. The failure of an important bank in Germany was one of the prime influences in forcing lower cotton prices at the start of the week. Expectation that the difficulty, although serious, will be solved through international cooperation gives hope that the raw material will shake off this new element of pessimism within a comparatively short time.

Second Hand Sellers in Evidence

Holders of print cloth contracts seem quite willing to resell at a fraction of a cent under the market, and this condition has naturally resulted in weakened prices. Quotations from first hands early in the week were almost nominal since the majority of mills was unwilling to meet the cuts which were reported from second hands. The primary market seems in good shape to outwait buyers since the recently announced statistics for June disclose declining production rates, lower stocks, and a considerable increase in unfilled orders. Such weakness as developed seemed particularly prominent in 80-squares as these goods were quoted down to 6¼c. by second hand sellers which is just about the bottom at which the goods sold early in June. Both first and second hands sold 64x60s at 4⅞c. for nearby, with deliveries in September and October at 4¾c.

The progress which the market has made in reducing stocks is evidenced in a report by the Hunter Mfg. & Commission Co. to the effect that the total stocks of goods in the hands of the mills which it represents were smaller on June 30 than at the end of any six-month period in recent years. These stocks were 20% less than those of June 30, 1929, and 54% less than those of Dec. 31, 1929. It is generally understood that southern mills are making use of the summer vacation periods further to restrict their production and it seems only necessary for the whole industry to become conscious of its increasingly strong position to bring sellers to the point of asking prices which mean profit, and sticking to them.

Down Pressure on Quality

Retail sales of cotton goods through June have been reported excellent from many quarters. It is a fact to be watched, however, that in their replacements retailers are pressing for lower and lower prices. In most cases this means a sacrifice of quality, and, unless the trend is modified, there will be much sub-standard merchandise offered to the consumer next fall. With the present low prices on cotton, good quality fabrics at bargain prices can still be offered and unreasonable sacrifices of quality would not seem to be justified. The dollar wash dress gives promise of moving a large yardage of goods, but competition is so severe that there is talk of the 60c. or 75c. dress taking the leadership in the cheap end of the market.

Greater stability has been evident in fine and fancy goods this week and a certain amount of steady business has been booked. Converters are supposed to have done a good volume of summer trade, and, with fairly clear stocks, they are preparing for further prominence of colored cottons for women's wear this fall.

◆Wool Goods Mills Buying Spun Silk

DEMAND for yarns which had favored throwsters of late, this week leaned toward spinners. Broad-silk mills and woolen and worsted houses both show interest in spun silk. There is a fair spot call from the makers of the heavier weight fabrics, as spun silk is used extensively in this year's offerings, and the woolen and worsted lines are enjoying spirited call. Spun yarn orders from this group are not large, but they help to carry mills over the lean weeks. Silk weavers inquire actively, and place light orders, with promise of more buying next month. Spinners are confident of the outlook; they expect a steady fall movement, followed by early spring coverage. Stocks in spinners hands are moderate.

Throwsters are in the midst of their summer lull. The activity which followed the raw silk rise has been succeeded by general apathy; neither weavers nor knitters show any interest. Inquiries are beginning to come in from the hosiery trade, and throwsters expect these manufacturers to begin buying soon, provided prices hold steady. The price uncertainty is the biggest handicap to buying at present; consuming groups look for a reaction in the primary market, and buy only as they actually use the yarn. Stocks in throwsters hands are smaller; numerous mills have closed for the vacation period.

▸New Specifications For Textiles Being Studied

Federal Specifications Board, Washington, D. C., has notified the trade the board will adopt new purchase specifications for textiles as purchased by various departments of the United States Government. Comments or suggestions from those interested will receive careful consideration before the new specifications are made effective. New Federal specifications will be adopted for percale, superseding those dated May 2, 1928; duck for khaki tents, superseding those dated June 1, 1924; unbleached drill, superseding those dated May 22, 1928; jute burlap, superseding those dated June 10, 1927; and gingham.

KNIT GOODS MARKETS

TEXTILE WORLD ANALYST

◆Swimsuit Demand Turns the Corner

WHILE some major manufacturers of bathing-suits note a decline in demand, there is still plenty of business available, and some firms are taking orders for late July shipment. Orders are small and are mostly duplicates. Indications point to a gradual let-up during the second half of the month with the season ending about Aug. 1, which will make it the longest and latest season the swimsuit industry has known. Mills are in good position, both as regards volume and net, and have enjoyed a better season than most of the other divisions in the knit goods field.

Fall sweaters show more action. There were plenty of buyers in the New York market this week, and others were expected in on Monday. Buyers are cautious about placing business, but they shop around actively, and manufacturers believe the end of the month will find heavyweight sweaters moving at pressure. Stocks are light, and production is being increased gradually. Current sweater call is for black and navy shades.

◆Low-Price Mesh Hose Vogue Waning?

SALES trends of the week in the hosiery market show a tendency away from the popular-priced mesh stockings, and there is a growing belief that this high-pressure vogue, which ran up such impressive volume in the past few months, is on the wane. It is too early to speak definitely, but the situation is such that manufacturers producing low-priced mesh lines ought to go slow, from now on.

Distributors are less interested in the lace hosiery, retailing at 85c. to $1.15, per pair than they were two weeks ago. There is still a solid market for the more carefully styled, higher-priced mesh lines, and prospects point to a continuation of this demand into fall. Mesh numbers, selling at $1.65 upwards, have fashion approval for wear with formal apparel, and the coming winter may see them still a leader in that field. The popular-priced mesh was an excellent volume-builder, and it has brought more than one firm "out of the red"; however, caution is the keynote now; the wise manufacturers will be those who refuse to risk what they have made, in an end-season slump.

It is conceivable that popular-price mesh may prove nothing more than a seasonal proposition, and that the consumers who favored this line so strongly in spring and summer may go back to staples for fall. Such a development was forecast by some observant mill agents in spring, and these factors counselled their own mills to hold down on production.

Full-fashioned lines are in moderate demand, for spot shipment, and prices are somewhat steadier. Market tone is stronger and manufacturers look to a satisfactory August. Advance buying of heavier weights for fall increases slowly, and some firms have booked substantial business.

Half-hose movement is still centered on the lines retailing at 25c. and 35c., with a fair call for the 50c. numbers. Jobbers placed numerous small spot orders for men's fancies this week. Mill stocks are easier; there is less distress merchandise available.

◆Medium Underwear Call Leads Heavies

THE expected mid-July improvement in call for winterweight underwear has failed to materialize and there are signs of an increased consumer slant toward mediumweights. Companies offering both lines, find their fall coverage on the mediumweights is well ahead of the heavies. The trend toward lighter underwear has been manifest, in a moderate way, for several seasons, but it now seems to be growing acute.

Numerous of the large distributors have placed their initial fall orders for heavyweights, but they lend a deaf ear to suggestions of reorders; many of the fair-sized jobber and retailer units, have not placed any fall business as yet. The cue for mills is to hold down on output; current stocks in producers' hands are light, and this should keep the market firm, even if orders continue light.

If the distributors put off buying heavyweights much longer, the chances are everyone, from mill to store, will suffer in lost business, as the last minute demand will be beyond mill capacity. The underwear industry can find an object lesson in the experience of certain rayon producers who lost heavily recently, because business came all at once, and they could not fill orders.

Ribbed underwear mills are holding to prices; thanks to light stocks they are at no pressure to clear, and are simply waiting developments. The delay in coverage is more pronounced than ever before; and it is difficult to gauge the outlook. Distributors are suffering a sort of "fear complex" regarding these lines, and it is within possibility that they may put off buying until they are within a few weeks of the fall consumer season.

Lightweights move steadily, but there is no spirited movement. Cottons, rayons and balbriggans all are in good call for immediate shipment. One representative company reports July well below June; but June, for this firm was exceptionally good, dollar volume being in excess of the same month last year.

▸Association Urges Firm Prices on Seamless Hosiery

Manufacturers of seamless hosiery are being urged by the National Association of Hosiery & Underwear Manufacturers to go over their costs carefully and eliminate profitless merchandising. In a statement, the association asserts that the present is "an excellent time for seamless hosiery mills to take a firm stand in the matter of prices.

"Major textile raw material prices are believed to have touched bottom, and the stage is considered to be set for the elimination by seamless hosiery manufacturers of some of the selling practices which have resulted in the use of so much red ink in the industry. Among these practices has been the dangerous policy of deliberately selling one or two numbers at less than cost, in the expectation of making up their loss on some other numbers. Other mills doing the same thing have picked out different numbers on which to sacrifice, with the result that on some items at least the market has been established by below-cost prices. Seamless hosiery manufacturers are urged to check up carefully on competitors' quotations reported to them by prospective buyers and to prepare right now for the expected improvement in business by analyzing their individual costs carefully and completely, and refusing to sell except at a profit."

▸Text of Wisconsin "Spoiled Work" Law

Text of the new law enacted by the Wisconsin State Legislature to prohibit employers from making deductions for "spoiled" work which has an important bearing on knitting mill operations in that state was made public this week. The new statute provides:

"No employer shall make any deduction from wages due or earned by any employee, not an independent contractor, for defective or faulty workmanship, unless such defect or faulty work is wilful and intentional. If any such deduction is made or credit taken by any employer, he shall be liable for twice the amount of the deduction or credit taken in a civil action brought by said employee, and in addition he shall forfeit to the State a sum not to exceed $25 for each such offense."

TEXTILE FINANCIAL NEWS

TEXTILE WORLD ANALYST

◆Dwight Shows Less Loss Than Year Ago

REPORT of the Dwight Mfg. Co. for the year ended May 30, 1931, shows a loss, after all charges, including depreciation, inventory write-off and other deductions, of $491,753, as compared with a loss in the previous year of $825,883. During the year, however, many improvements in plant set-up have been completed.

Current assets at the end of the period amounted to $3,237,808, and current liabilities to $1,982,886, leaving working capital of $1,254,921, against $1,853,171 a year ago. The balance sheet shows a deficit of $1,808,053.

George Nichols, treasurer, had the following to say regarding the position of the company:

"Work formerly done in the Chicopee plant has been run out. Such textile machinery as was suitable has been transferred to the plants at Somersworth and Alabama City, and the balance sold, principally as scrap. Real estate, buildings and waterpower were transferred late in March to Industrial Buildings Corp., so that this plant disappears from the operating statement of your company as of that date.

"At Somersworth, the No. 1 mill has been closed down and manufacturing is now confined to the new No. 2 mill of about 55,000 spindles, which runs almost exclusively on Dwight Anchor sheetings. This has enabled us to simplify manufacturing organization with very gratifying results as to costs.

"At Alabama City spinning has been replaced with new Whitin spinning. The card room has been remodeled. Installation of high-speed warping has been completed. The cost of this work has been apparent during the last six months.

"During the year your company manufactured 51,831,184 yards of cloth and sold 51,831,691 yards."

At the annual meeting of the company's stockholders, Allan Little, agent and local manager of the Alabama City plant, was elected a director. All other officers and directors were re-elected.

New Bedford Expects Tax Adjustment

The 16 New Bedford (Mass.) cotton mills seeking a tax abatement have agreed to defer action until Sept. 1, 1931, and in the meantime it is anticipated that an adjustment will have been made by the board of assessors, representing the city of New Bedford, and Joseph T. Kenney, attorney for the mill corporations.

A number of conferences have been held by the respective parties, as a result of which Joseph H. Handford, chairman for the assessors, has announced:

"In all cases where abatements were sought an extension of time has been agreed upon, and it is my belief that the cases will be adjusted so that no court action will be taken on any of the 1930 petitions."

The petitions were filed March 18 last, and under the law a decision must be reached in four months, unless an adjustment, or an agreement for extension of time is made. Since 1924, when the total tax payment of the cotton mills to the city was $2,532,044, there has been a gradual reduction in the spindle valuation, but valuations are still considered too high under present textile conditions.

Even if there is a further reduction this year, it is not expected to affect the actual amount paid to the city, as the tax rate for this year will be considerably higher than a year ago, several quarters placing it as high as $4 per thousand.

Financial Brevities

Assabet Mills, of the American Woolen Co., Maynard, Mass., has rejected a verbal offer of a 10% reduction in the valuation of its mills by the town assessors. The company petitioned for a reduction of $1,250,000. It will take the case to the State Board of Tax Appeals.

The Berkshire Woolen Co., Pittsfield, Mass., has reduced capital stock from 7,000 shares of preferred $100 par to 4,500 shares. Instead of 4,500 common shares there are now 18,000 shares no par.

Boston Stock Auctions

The following sales of textile shares were made at auction, Wednesday, July 8:

Shares	Mill	Par	Price	Change
12	Dartmouth, com...	100	25½	+½
7	Ludlow.....	...	107½	+2
[illegible]				
19	Total			

▶Textiles on N. Y. Exchanges

The following shows the movements of the leading textile stocks listed on the New York Stock Exchange and Curb for the week ended July 14:

	High	Low	Last Sale	Net Ch'ge
Adams Millis	23¾	23¾	23¾	—1¼
*American Thread, pfd.	3	3	3	...
American Woolen	7¼	6½	6½	—¼
American Woolen, pfd.	30½	28½	28½	—1
Belding-Heminway	3¾	3¾	3¾	+¼
Cannon Mills	21	20½	20½	—½
Century Ribbon	5	4¾	4¾	+¼
Collins & Aikman	16¼	14	14	...
Consolidated Textile	¾	½	¾	+¼
Durham Hosiery, pfd.	21	21	21	...
Gotham Hosiery	10½	9¾	10¼	—¼
Industrial Rayon	33½	28	29	—1½
Kayser, Julius	13¾	12	12	—1½
Kendall, pfd	48	44	48	+3
Mallinson	2	2	2	...
Mohawk Carpet	13	12½	12½	—¼
Munsingwear	19¼	19	19	...
†Powdrell & Alexander	32½	21½	32½	+¾
Real Silk Hosiery	8¾	7	7	—1¼
*Tubize	5½	5	5½	...
United Piece Dye Works	23¼	20	20	—2

*Listed on Curb.

▶Southern Mill Stocks

(R. S. Dickson & Co., Charlotte, N. C.)

	Bid	Asked
Acme Spinning Co.	49	60
American Yarn & Processing Co.	44	47
Chadwick-Hoskins Co. (Par. $25)	...	9
Chadwick-Hoskins Co., 8%, pfd.	80	88
Crescent Spinning Co.	42	48
Durham Hosiery, 6%, pfd.	17	23
Erwin Cotton Mills Co., 6%, pfd.	86	91
Flint Mfg. Co.	...	56
Flint Mfg. Co., 7%, pfd.	83	92
Hanes, P. H. Knitting Co.	7	10
Hanes, P. H. Knitting Co., 7%, pfd.	81	92
Linford Mills	50	62
Perfection Spinning Co.	49	65
Roanoke Mills, 1st. pfd. 7½%	42	55
Rosemary Mfg. Co., pfd., 7½%	74	82
Stowe Spinning Co.	40	51
Ware Shoals Mfg. Co.	...	100
Ware Shoals Mfg. Co., 7%, pfd.	70	85
Winget Yarn Mills Co.	...	42
Wiscasset Mills Co.	120	135

(A. M. Law & Co., Spartanburg, S. C.)

Avondale Mills, Ala.	525	650
Bibb Mfg. Co.	80	85
Clifton Mfg. Co.	..	83
D. E. Converse Co.	..	75
Dunean Mills	70	90
Dunean Mills, pfd.	94	98
Gossett Mills	..	31
Hunter Mfg. & Com. Co., pfd.	73	76
Judson Mills, A pfd.	83	86
Judson Mills, B pfd.	79	83
Monarch Mills	70	80
Newberry Cotton Mills	80	85
Orr Cotton Mills	35	40
Pacolet Mfg. Co.	..	70
Piedmont Mfg. Co.	..	80
Riverside & Dan River Mills(Par $25)	7	9
Riverside & Dan River Mills, 6% pfd.	54	58
Southern Bleachery & Print Wks.,pfd	40	50
Spartan Mills	95	105
Union-Buffalo Mills, 1st pfd.	...	55
Victor-Monaghan Co.	39	41

▶New England Textile Stocks

Quotations at "Public Sale" are based on last sales at Boston Public Auctions and Boston Stock Exchange. Bid and Asked prices are latest quotations of dealers.

	Sale	Bid	Asked
Am. Mfg. Co., pfd.	52	42	46
Amoskeag	8	9	9½
Arlington	18½	22	24
Associated Textile	35-36½	34	37
Bates	60	44	49
Berkshire Associates, com.	12½	6	8
Berkshire Associates, pfd.	40½	25	...
Bigelow-Sanford, com.	26½	24	25
Boott Mills	120½	70	80
Edwards	80½	54	59
Esmond, pfd	98	95	99
Farr Alpaca	33½-34	33	36
Hamilton Woolen	40	37	40
Hill	9	9	12
Indian Orchard	10	5	10
Ludlow	107½	106	108
Merrimack, com	35	16	...
Nashua, com	7½	6	8
Nashua, pfd.	29	27	31
Naumkeag	71-71½	69	72
Newmarket	16½	13	16
Otis	45	41	45
Pacific	19	19	20½
Pepperell	66½	66	69
Plymouth Cordage	63	64	66
York	8¾	6½	..

▶Rayon Market Report

(*Continued from page 52*)

pick-up in yarn orders may be looked for early in August. Already, producers are receiving many inquiries regarding standard 150s for fall shipment; and, to a lesser degree, are booking fall business.

There is a shortage of most of the bright luster 150s, for spot shipment; some large producers are sold out on these yarns for this month; a few refuse to accept business for delivery before mid-August. The shortage is particularly acute in some of the second quality 150s.

QUOTATIONS

at close of business, July 15, 1931

Prices cover average qualities unless otherwise stated

Cotton Goods

	July 15	July 8	July 16, 1930
PRINT CLOTHS			
27 -in., 64x60, 7.60	3¼-3¼c.	3¼c.	4¼c.
38½-in., 64x60, 5.35	4¼-5 c.	5 -5¼c.	5¾-5¾c.
39 -in., 68x72, 4.75	5¼-5¼c.	5¾-5¾c.	6¼-6¼c.
39 -in., 72x75, 4.25	6¼c.	6¼c.	7¼c.
39 -in., 80x84, 4.00	6¼-6¼c.	6¾c.	7¾c.
BROWN SHEETINGS			
36-in., 56x60, 4.00	5¼c.	5¼c.	7 c.
36-in., 48x48, 3.00	5¼c.	5¼c.	8¼-8¼c.
37-in., 48x48, 4.00	4¾-5c.	5 c.	6¼c.
PAJAMA CHECKS			
36½-in., 72x80, 4.70	6c.	5¾-6c.	6¾-6¾c.
36½-in., 64x60, 5.75	5c.	5 c.	5¾-5¾c.
MISCELLANEOUS			
Drills, 37-in., 3 yd.	6¼c.	6¼c.	8¼c.
Denims, 2.20	11 c.	11 c.	12¼c.
Tickings, 8 oz	14 c.	14 c.	17½-17½c.
Standard prints	7¼c.	7¼c.	8 c.
Eastern staple ginghams, 27 in.	8 c.	8 c.	10 c.

Cotton Waste

Peeler comber	7¼- 7¾
Peeler strips	7 - 7¼
Sak. comber	7 - 7¼
Choice willowed fly	3¼- 3¾
Choice willowed picker	3 - 3½
Sak. strips	9 -10
Linters (mill run)	2¼- 3¼
White spooler (ringle)	5¾- 6¼

Cotton Yarn

CARDED (Average Quality)

Double Carded 2c.—4c. higher according to quality

SINGLE SKEINS OR TUBES (Warp Twist)

4s to 8s	$0.17	22s	$0.21
10s	.17½	24s	- .22
12s	.18	26s	- .23
16s	.18½	30s	- .24
20s	.19 - .19¼	40s ex.qual.	.34 - .35

TWO-PLY SKEINS AND TUBES

8s-2	$0.17 - .17¼	26s-2	$0.23
10s-2	.17½- .18	30s-2	- .24
12s-2	.18 - .18½	36s-2	- .30½
14s-2	- .19	40s-2	.31½- .32½
16s-2	.19 - .19½	40s-hi.brk.	.34 - .35
20s-2	.20 - .21	50s-2	- .40
24s-2	.22 - .22½	60s-2	- .46

SINGLE WARPS

10s	$0.17-$0.17½	24s	$0.22
12s	- .17½	26s	- .22½
14s	.17½- .18	30s	- .24½
16s	.18 - .18½	40s.ex.qual.	- .35
20s	.19 - .20		

TWO-PLY WARPS

8s-2	$0.18	24s-2	$0.22½
10s-2	- .18½	26s-2	- .23
12s-2	- .19	30s-2	.24 - .24½
14s-2	- .19	40s-2 ordin.	.31½- .32
16s-2	.19 - .20	50s-2	- .40
20s-2	.20 - .21	60s-2	- .46

8s-3 and 4-ply skeins and tubes: tinged, 16-16½ white, 17-17½; waste, 15½

HOSIERY CONES (Frame Spun)

8s	$0.16½	22s	$0.20½- .21
10s	.16½ - .17	24s	.21½- .22½
12s	- .17½	26s	.22½- .23½
14s	.17½- .18	30s tying	- .24
16s	.18 - .18½	30s reg.	.24½- .25
18s	.18½- .19	30s ex.qual.	.26½- .27½
20s	.19½- .20½	40s	.32 - .33

COMBED PEELER (Average Quality)

TWO-PLY—(Knitting Twist) Cones

20s-2	$0.31 - .33	60s-2	$0.50
30s-2	.35 - .36	70s-2	.60
36s-2	.37 - .38	80s-2	.71
40s-2	.39 - .40	90s-2	.90
50s:2	.45 - .46	100s-2	1.10

WARPS, SKEINS AND CONES

TWO-PLY—(Warp Twist)

20s-2	$0.30 - .31	60s-2	.51 - .52
30s-2	.35 - .36	70s-2	.61 - .62
36s-2	.37 - .38	80s-2	.72 - .74
40s-2	.39 - .40	90s-2	.90 - .92
50s-2	.44 - .46	100s-2	1.10 -1.12

SINGLES

12s	$0.26½- .27	30s	.36 - .36½
14s	.27 - .27½	38s	.38½ - .39½
16s	.27½- .28	40s	.39½ - .40½
18s	.28 - .28½	50s	.44 - .45
20s	.29 - .29½	60s	.50 - .52
24s	.31 - .31½	70s	.60 - .63
28s	.34½- .35	80s	.71 - .75

MERCERIZED CONES—(Combed, Ungassed)

26s-2	$0.47 - .48	90s-2	$1.18 -1.23
30s-2	.49 - .50	100s-2	1.48 -1.53
36s-2	.52 - .53	120s-2	1.88 -1.93
40s-2	.55 - .56	30s	.60
45s-2	.57 - .58	40s	.62
50s-2	.59 - .60	50s	.67 - .70
60s-2	.67 - .68	60s	.77
70s-2	.79 - .80	70s	.87 - .90
80s-2	.90 - .91	80s	1.05 -1.10

Cotton Prices and Statistics

FLUCTUATIONS OF FUTURES

	Closed July 9	For Week—High	For Week—Low	Closed July 15	Net Ch'ge
July	9.18	9.33	8.75	8.87	—.31
August	9.28	9.29	8.96	8.92	—.36
September	9.38	9.40	9.09	9.05	—.35
October	9.49	9.57	9.08	9.18	—.31
November	9.59	9.87	9.21	9.30	—.29
December	9.71	9.90	9.30	9.40	—.31
January	9.82	10.01	9.42	9.51	—.31
February	9.90	9.98	9.65	9.61	—.31
March	10.00	10.18	9.62	9.71	—.29
April	10.09	10.16	9.83	9.79	—.30
May	10.18	10.35	9.77	9.87	—.33

SPOT FLUCTUATIONS FOR WEEK (Middling)

	New York	New Orleans	Liverpool
Thursday, July 9	9.35	9.18	5.21
Friday, July 10	9.35	9.18	5.05
Saturday, July 11	9.25	9.12	5.08
Monday, July 13	9.10	8.97	4.89
Tuesday, July 14	9.10	8.92	5.02
Wednesday, July 15	9.05	8.85	4.91

FOREIGN COTTONS

Egyptian Cotton

Alexandria Exchange, July 14		Change
July Sak.	14.10	—1.38
August uppers	10.20	—1.07

July-Aug. Shipment c. i. f. Boston (Tariff not included)

Fully good fair Sak.	17.00
Fully good fair to good Uppers	12.65

(By Anderson, Clayton & Co.)

Foreign cottons	F. O. B. New York, Cents
Peruvian Tanguis Strict Middling	20
Peruvian Pima No. 1	19
Peruvian Moderate Rough	15½
Peruvian Full Rough	18
China Tientsin No. 1	11¼
India Rough	8 to 11
India Smooth	8 to 11

(By Bruns-Nordeman Co.)

BASIS MIDDLING

	Saturday, July 11	Saturday, June 27
10 markets average	8.81	9.87
Memphis	8.45	9.50

PREMIUM STAPLES

First Sales from Factors Tables at Memphis

Grade Strict Middling	Basis Steady
1⅛-in	11.50—11.75c.
1 3/16-in	12.50—13.00c.
1¼-in	17.00—17.50c.

CURRENT SALES

	For Week	Prev. Week	Week Before
Memphis total	1,842	5,418	5,276
F.o.b. included in total	1,616	4,545	4,612
10 markets	8,158	15,873	15,466

MEMPHIS RECEIPTS, SHIPMENTS, ETC.

	For Week	Last Year	Year Before
Net receipts	460	1,433	1,606
Gross receipts	11,868	7,667	6,678
Total since Aug. 1, net	657,635	942,520	861,312
Shipments	19,473	19,773	14,617
Total since Aug. 1	1,393,132	1,858,859	1,826,535
Total stock	131,692	168,182	62,502
Decrease for week	7,555	12,106	7,939
Unsold stock in hands of Memphis factors	11,696	27,154	
Decrease for week	525	1,228	

AVERAGE PRICE JULY-AUG. SHIPMENT HARD WESTERN COTTON

F.o.b. NEW England

	Middling	St. Middling
1 1/16-in	11½-11½c.	12 -12½c.
1⅛-in	12 -12½c.	12½-13½c.
1 3/16-in	14 -14½c.	14½-15½c.
1¼-in	19 -20c.	21 -22c.

Basis on New York, October, 9.22

SPOT FLUCTUATIONS AND STOCKS

Markets	Middling July 8	Middling July 15	Stocks Sales	Stocks This Week	Stocks Last Year
Galveston	9.55	9.05	2,723	418,152	190,005
New Orleans	9.34	8.85	1,076	617,528	365,323
Mobile	8.70	8.10	524	216,860	10,857
Savannah	9.13	8.68	611	343,271	104,467
Norfolk	9.25	8.69	332	56,320	49,692
New York	9.55	9.05	200	228,208	238,618
Augusta	9.06	8.56	105	61,172	51,707
Memphis	8.70	8.20	1,757	123,864	162,618
St. Louis	9.40	8.60		3,972	7,881
Houston	9.35	8.85	14,756	763,851	550,291
Dallas	9.05	8.55	4,329	6,480	10,784

DIFFERENCES ON AND OFF MIDDLING

WHITE GRADES

	Dallas	Memphis	Montgomery	Augusta	Average
M.F	.75†	1.00†	.85†	.75†	0.88†
S.G.M.	.60†	.75†	.75†	.63†	.70†
G.M.	.50†	.50†	.60†	.50†	.52†
S.M.	.35†	.25†	.35†	.25†	.31†
S.L.M.	.50*	.50*	.50*	.50*	.49*
L.M.	1.00*	1.00*	1.00*	1.00*	1.00*
S.G.O.**	1.75*	1.80*	1.75*	1.75*	1.76*
G.O.	2.40*	2.05*	2.50*	2.25*	2.36*

YELLOW TINGED

G.M.	.40*	.50*	.50*	.50*	0.47*
S.M.	.65*	.75*	.75*	.75*	0.72*
M.**	1.25*	1.00*	1.25*	1.25*	1.20*
S.L.M.	1.75*	1.75*	1.75*	1.75*	1.75*
L.M.**	2.50*	2.00*	2.50*	2.50*	2.40*

YELLOW STAINED

G.M.	1.00*	1.25*	1.00	1.00*	1.03
S.M.**	1.50*	1.75*	1.50*	1.50*	1.53
M.**	2.50*	2.00*	2.25*	2.50*	2.33

BLUE STAINED

G.M.**	1.25*	1.25*	1.25*	1.25*	1.25*
S.M.**	1.75*	1.50*	1.75*	1.75*	1.70*
M.**	2.50*	1.75*	2.50*	2.50*	2.35*

**Grades not deliverable on contract. †On Middling *Off Middling.

Wool

OHIO, PENNSYLVANIA AND WEST VIRGINIA (IN GREASE)

Fine delne	$0.25½–$0.26	¾ blood	$0.22 –$0.23
Fine clthg	.20 – .21	½ blood	.21 – .22
¼ blood	.24 – .25		

TEXAS AND CALIFORNIA (CLEAN BASIS)

Texas, 12 months	$0.59 –$0.60
California, Northern	.52 – .53

PULLED—EASTERN (CLEAN BASIS)

A.A.	$0.64 –$0.69	B-Super	$0.45 –$0.50
A-Super	.53 – .57	C-Super	.42 – .45

MONTANA, IDAHO AND WYOMING (CLEAN BASIS)

Staple fine	$0.61 –$0.63
Staple ¼ bld	.56 – .58
Fine and fine medium	.55 – .58
¾ blood	.47 – .50
½ blood	.42 – .45

MOHAIR—DOMESTIC

Best carding	$0.23 –$0.25
Best combing	.31 – .33

MOHAIR FOREIGN (IN BOND)

Turkey fair, average	$0.17 –$0.20
Cape firsts	.18 – .21

FOREIGN CLOTHING AND COMBING (CLEAN BASIS IN BOND)

Australia:	
70s	$0.53 –$0.55
64s	.46 – .48
58s-60s	.41 – .43
(IN GREASE)	
Montevideo:	
58s-60s	$0.19 –$0.20
56s	.18 – .19
50s	.16 – .17
Buenos Aires:	
4s, 40-44s	$0.14 –$0.15
5s, 36-40s	.12 – .14

FOREIGN CARPET (GREASE BASIS IN BOND)

Aleppo washed	$0.22 –$0.24
China: Combing No. 1	.13 – .14
China Filling Fleece	.12 – .14
Szechuen ass't	.12 – .14
Cordova	.14 – .15
Scotch black face	.15 – .17
East India: Kandahar	.17 – .19
Vican'r	.23 – .25
Joria	.23 – .24

Worsted Yarns

ENGLISH SYSTEM WEAVING

2-20s 36s	$0.77½–0.80
2-24s 40s	.85
2-26s 44s	.87½– .90
2-28s 46s	.92½– .95
2-30s 48s	.95 – .97½
2-32s 50s	.97½–1.00
(Single yarns 5c. less than above)	
2-36s, 58s	$1.22½–1.25
2-40s, 60s	–1.32½
2-40s, 64s	1.35 –1.37½
2-50s, 66s	1.45 –1.50
2-60s, 70s	1.85 –1.87½

ENGLISH SYSTEM KNITTING

2-20s, 44s in oil	$0.75 –0.77½
2-20s, 48s in oil	– .80
2-20s, 50s in oil	.80 – .82½
2-20s, 56s in oil	.92½– .95
2-20s, 60s in oil	1.10 –1.12½
2-20s, 64s in oil	1.20 –1.25
1-18s, 46s dyed	.95 – .97½
1-18s, 48s dyed	.97½–1.00
1-18s, 50s dyed	.97½–1.00
(Oil yarns 17½c. less)	

FRENCH SYSTEM

1-20s, 58s	$1.05 –1.07½
1-20s, 60s	1.10 –1.12½
1-18s, 64s, dyed	1.32½–1.35
1-26s, 64s	1.12½–1.15
1-30s, 60s, Warp	1.20 –1.22½
1-30s, 64s, Warp	1.22½–1.25
2-30s, 64s, Fancy mixes	1.45 –1.47½
2-40s, 64s, Zephyrs	1.35 –1.40
1-50s, 66s	1.47½–1.52½
2-50s, 66s	1.50 –1.55
1-60s, 70s	1.85 –1.87½
2-60s, 70s	1.90 –1.95

FRENCH SPUN MERINO WHITE

1-30s, 50-50-58s on cops	$ .95 –1.00
1-40s, 50-50-6 0s on cops	1.10 –1.15
1-40s, 50-50-64s on cops	1.12½–1.15
1-40s, 50-50-64s Australian cops	1.20 –1.25

Underwear mixes, 3 to 5c., Solid color, 35c. additional.

New York Top Futures

	Closed July 8	For the Week High	For the Week Low	Closed July 14	Net Ch'ge
September	73.30	73.60	73.10	73.10	—0.20
October	73.10	73.20	72.10	72.10	—1.00
November	73.10	73.10	71.60	72.10	—1.00
December	73.10	73.10	71.60	71.80	—1.30
January	73.10	73.10	71.60	71.80	—1.30
February	73.10	73.10	71.60	71.80	—1.30
March	73.10	73.40	71.50	71.80	—1.30
April	73.10	73.10	71.60	71.80	—1.30
May	73.10	73.10	71.60	71.80	—1.30

Tops and Noils

TOPS—BOSTON

Fine (64-66s)	$0.85–$0.87
Half-blood (60-62s)	.78– .80
High ¾ blood (58s)	.70– .72
Aver. ¾ blood (56s)	.63– .65
Low ¾ blood	.60– .62
High ½ blood (50s)	.53– .55
46s S. A. and N. Z.	.51– .53
44s S. A. and N. Z.	.50– .52
40s S. A. and N. Z.	.48– .50

TOPS—BRADFORD, ENG. (JULY 10)

Fine (70s)	26 d	¾ bld. (56s)	15½d
Fine (64s)	23 d	½ bld. (50s)	13 d
¾ bld. (60s)	21 d	Cross-bred (46s)	10½d
¾ bld. (58s)	18 d		

NOILS—BOSTON

Fine	$0.42–$0.44	High ¾ bld.	$0.33–$0.35
Half-bld	.38– .40	Low noils	.28– .32
Aver. ¾ bld.	.35– .38	Medium colored	.25– .28
Fine colored	.33– .35		

Wool Substitutes

WOOL WASTE

Lap, fine white	$0.63 –$0.67
Lap, fine colored	.46 – .50
Hard ends, fine white	.52 – .55
Hard ends, ¼ blood white	.37 – .40
Hard ends, fine colored	.25 – .27
Hard ends, medium colored	.18 – .20
Card, fine white	.23 – .26
Burr, fine Carbonizing	.27 – .30

OLD WOOLEN RAGS (GRADED FOR MFRS.)

Merinos, Coarse Light	$0.05 –$0.05½
Merinos, Fine Dark	.03½– .04
Merinos, Fine Light	.11 – .11½
Serges, Blue	.05½– .06
Serges, Black	.05½– .06
Serges, Red	.08 – .09
Knit, White	.23 – .24
Knit, red	.10½– .11
Knit, Light Hoods	.13 – .14
Worsted, Light	.05 – .05½
Worsted, Blue	.05½– .06
Worsted, Black	.06 – .06½

Silk Yarns

THROWN SILK (60 day basis)

	Nominal
Japan organzine, 2 thd. spec. gd. XX. sk. 85%	$4.00
Japan organzine, 2 thd. sp. crack. sk. 81%	3.65
Japan crepe, 3 thd. gd. XX bob. 83%	3.80
Japan crepe, 3 thd. sp. crack. bob. 81%	3.70
Japan crepe, 4 thd. crack bobbins, 78%	3.60
Japan grenadine, 4 thd. sp. grand singles, 87%	5.05
Japan grenadine 3 thd. 90%	5.80
Canton crepe, 3 and 4 thd. ns. 14/16 on bobbins	2.65
Hosiery tram, 3 thd. Japan 90%	4.80
Hosiery tram, 5 thd. Japan, 85%	3.65
Hosiery tram, crack XX 78%	3.30

SPUN SILK YARNS (Terms: net 30)

40/2	$3.10	60/2	$3.45
54/2	3.30	62/1	2.35

Raw Silk

(60 Day Terms. Spot Goods.)

	13/15 White	20/22 White	20/22 Yellow
Super Grand, 86/88%	$3.10	$2.45	$2.40
Special Grand, 85%	2.90	2.35	2.35
Grand XX, 83%	2.75	2.30	2.30
Special Crack, 81%	2.65	2.30	2.30
Crack XX, 78%	2.55	2.25	2.25
Extra Extra, 73%	2.50	....	....
Best Extra, 68%	2.45	....	....

Canton filature, new style, 14/16	$1.70
Canton filature, new style, 20/22	1.60
Tussah filature, 8 cocoon	1.00

NATIONAL RAW SILK EXCHANGE

	Close July 8	For the Week High	For the Week Low	Close July 14	Net Ch'ge
July	2.39	2.45	2.35	2.41	+.02
August	2.38	2.43	2.35	2.40	+.02
September	2.37	2.41	2.22	2.38	+.01
October	2.36	2.39	2.33	2.37	+.01
November	2.37	2.39	2.33	2.37	.....
December	2.37	2.39	2.34	2.37	.....
January	2.36	2.39	2.33	2.36	.....
February	2.36	2.38	2.33	2.36	.....

Total number of bales, 3,780. Total approximate value $1,283,987. Trading unit crack XX 13/15 white 78%.

Domestic Rayon

VISCOSE PROCESS

Denier	Filament		First	Second
50	14		$2.15	$1.95
75	18–30		1.35	1.25
100	18–40		1.10	1.00
125	36–50		1.00	.90
150	30		.70	.67
150	24–40		.75	.72
150	60		.85	.82
150	75–90		.85	.82
170	24–27		.75	.72
170	60		.85	.82
200	30		.75	.72
200	35–42		75	.72
300	42–62		.63	.60
450	54–60		.63	.60
600	72–96		.63	.60
900	100–144		.63	.60

NITRO-CELLULOSE PROCESS

Denier	First Qual.	Second Qual.	Denier	First Qual.	Second Qual.
75	$1.35	$1.25	150	$0.75	$0 72
100	1.05	.95	175	.75	.72
125	.95	85			

CUPRAMMONIUM PROCESS

Denier	Filament	Price	Denier	Filament	Price
15	24	$3.10	65	45	$2.00
25	24	2.85	80	60	1.70
30	24	2.60	100	75	1.35
40	30	2.40	120	90	1.22
52	30	2.20	150	112	1.10
			180	135	.97

ACETATE PROCESS

Denier	Price	Denier	Price
45	$2.25 2.75	120	$1.90
55	2.05–2.55	140	1.30
65	2.45	150	1.40–1.85
75	1.80–2.70	200	1.55
100	1.65–2.45	300	1.50

Rayon Waste

Open bleached waste	$0.13–$0.14
Open unbleached waste	.10½
Bleached thread waste (mfs.)	.09
Bleached thread waste (misc.)	.06– .07
Colored thread waste	.04
Colored clips	.04

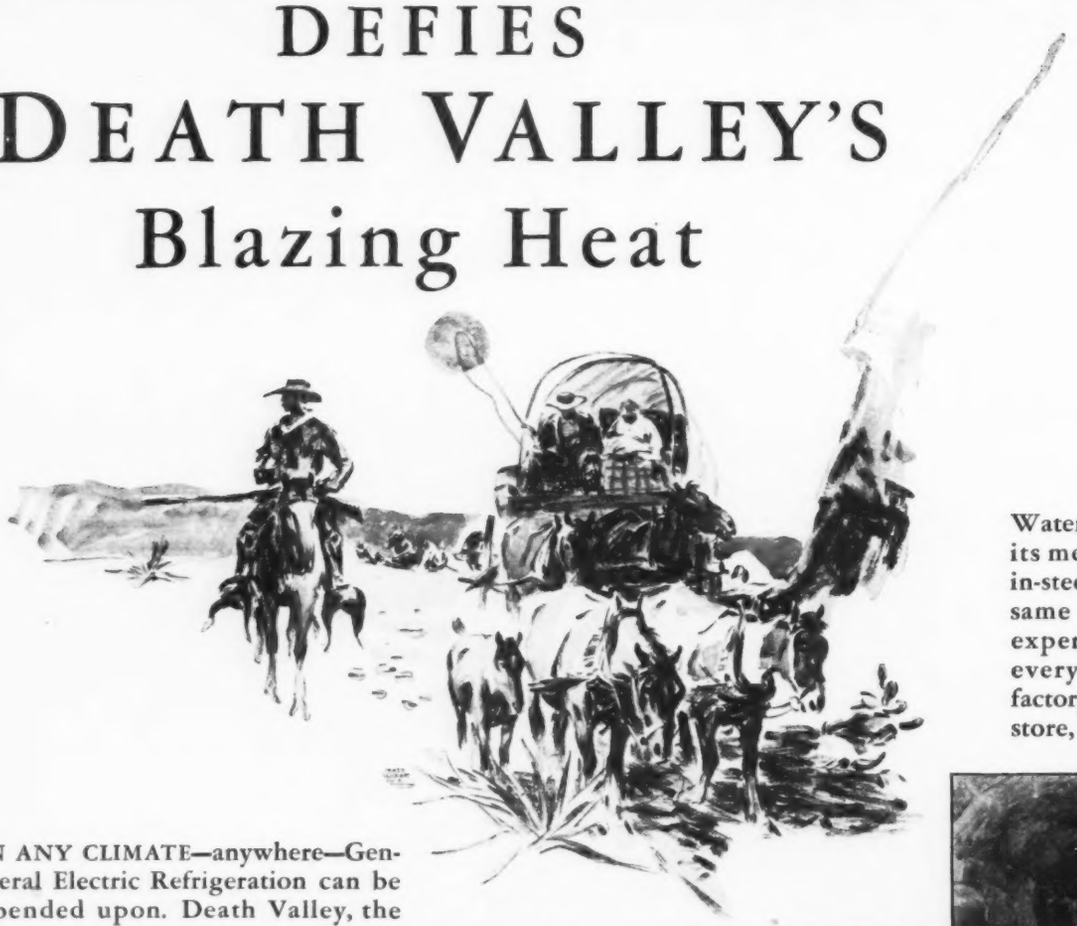
CONVERTED RAYON WASTE

Bleached tops	$0.30–0.32½
Unbleached tops	.28– .29
Bleached noils	.11
Unbleached noils	.09½
Bleached garnetts	.12
Unbleached garnetts	.13
Colored garnetts	.10– .11

Silk Waste

Kibizzo Kakai Grand XX	$0.50
Kibizzo Kakai Triple Extra	.44
Frison Grand Double	.49½
Pierced Cocoons	.50

General Electric Refrigeration DEFIES DEATH VALLEY'S Blazing Heat

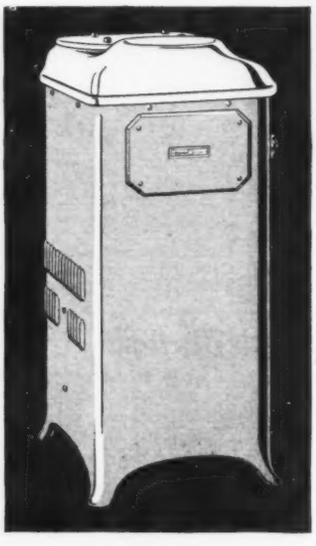


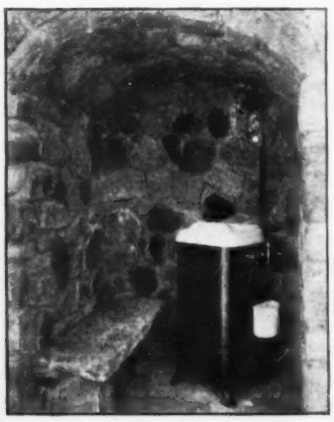
IN ANY CLIMATE—anywhere—General Electric Refrigeration can be depended upon. Death Valley, the "hottest spot in America," with an average summer temperature of 122°, is today one of America's most desirable winter resorts—thanks to Furnace Creek Inn, pleasant and popular resort—and its General Electric Refrigerators and Water Coolers.

Water is kept refreshingly cool—food fresh and wholesome—day in and day out, in spite of the extreme heat. Such performance as this has made possible the complete 3-Year Guarantee on General Electric Water Coolers and Refrigerators—on all models.

Furnace Creek Inn, Death Valley

Few General Electric Water Coolers will ever be called on to serve under such strenuous conditions as exist in Death Valley. But *every* General Electric Water Cooler . . . with its mechanism sealed-in-steel . . . will give the same attention-free, expense-free service everywhere—in your factory or office, in your store, in your shop. Let a refrigeration expert give you facts and figures. Call the General Electric dealer in your city today.





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High Taxes and Lack of Profits by Mills Reflects Alarming Situation, Says A. G. Myers

FUTURE development and expansion of the cotton textile industry in the Carolinas must be considered from within rather than from without those States, according to A. G. Myers, president, Textiles, Inc., Gastonia, N. C., who delivered a radio address on "The Importance of the Cotton Textile Industry to the State of North Carolina" over Station WPTF, Raleigh, N. C., July 11. The rapidly increasing Governmental costs and the corresponding increases in State and local taxes in both North and South Carolina, the speaker declared, "reflects an alarming situation and it can not be reasonably expected that the New Englanders will consider coming to the Carolinas with this high tax rate on textiles."

According to figures quoted by Mr. Myers, taxes per spindle in South Carolina have increased from 55c. in 1922 to 78c. in 1930. As compared with South Carolina's rate of 78c. per spindle and the North Carolina rate of 71c., it was pointed out that a New England authority on taxation recently said that for 1930 the average rate of taxes paid by New England mills was 52c. per spindle and by the Fall River mills only 43c. per spindle.

In discussing the economic conditions in the industry, the speaker declared that "an adequate return has not been made to the investors in its stock, nor has a proper wage been paid to its help, this being due almost altogether to the fact that there are still engaged in the cotton textile industry men who have no regard for the interests or welfare of their stockholders or their employees, but only for the profits they themselves can squeeze out of the business."

"The time is here, and the leaders of the industry might as well realize this fact now," Mr. Myers continued, "when the evils of overproduction, night work, cut-throat selling competition, employment of women and children on night shifts must cease if this great industry is ever to make any headway. The South—North Carolina—can never prosper until its leading industry, that of cotton manufacturing, can earn a sufficient return to be enabled to pay a fair dividend to its stockholders and a real living wage to its workers."

▸ Maximum Settings When Ends Exceed Picks

(Continued from page 25)

Fig. 52—i.e., that next to the fringe—is identical with pattern *P*, Fig. 49; and the fringe was specially included in the illustration referred to in order to show how closely set the warp threads are, and to emphasize the advantage obtained by changing half the warp threads at one time instead of changing all the threads simultaneously. One-quarter of the threads appear quite distinctly on the upper surface near the fell of the cloth; another quarter occupies a similar position on the under side of the fabric; while the remaining two quarters of the threads are crossing each other midway between the two extremes.

The upper woven fabric in Fig. 52 was obtained by sending the shuttle across on picks *a* and *c*, Fig. 50, again on the double-beat principle. The weave for this cloth appears on the left-hand side in Fig. 50 and should apparently produce a filling rib or repp effect. Nevertheless, the fabric shown in Fig. 52 is a double warp-faced cloth, and the change in the effect is obviously due to the preponderance of warp over filling in this particular fabric structure.

▸ New Partnership Continues Business as John F. Street Co.

Following the death of John F. Street, a new partnership has been formed to continue the business of his firm John F. Street & Co., yarns. In accordance with a provision made by the late Mr. Street the new firm will continue to use his name, operating as the John F. Street Co. The general partners are: Edwin F. Sherman, who has been connected with the old firm for more than 30 years; Horace I. Briggs, with 20 years service; and Henry A. Street, son of John F. Street, with 18 years service. The company's main office will continue at the New Industrial Trust Building, Providence, with branch offices in New York, Chicago, Philadelphia, and Charlotte.

The new company will continue to act as exclusive sales agents for the Roxboro Cotton Mills, Longhurst Cotton Mills, Laura Cotton Mills, Greenville Cotton Mills and Smithfield Mills.

▸ Wm. F. Read & Sons Co. Suspend Operations

The following statement has been authorized by Conyers Read, president Wm. F. Read & Sons Co., Philadelphia: "Wm. F. Read & Sons Co., have suspended operations. They have not yet decided when they will resume, but they will be out of the market this fall season, both on women's wear and men's wear lines."

▸ Signature Hosiery to Liquidate

Preferred stockholders of the Signature Hosiery Co., which for years was known as Schletter & Zander, Inc., have authorized the board of directors to liquidate the assets of the company, it was stated at the office of Herman Goldman, attorney for the mill, on July 14.

Another meeting was held later to decide upon final disposition of the company, which was incorporated last year under its present name when Charles M. McGee, former head of the hosiery department of the Brown Durrell Co., took charge of sales. The mill, which is in Philadelphia, was incorporated under its former name in 1922, with Richard Schletter, president, and W. E. Zander, treasurer. According to directory information it operated 110 full-fashioned knitting machines, 56 loopers and 66 sewing machines. For a number of years the mill sold its product through Brown Durrell.

▸ A New Seaming and Looping Yarn

Se-lo, a new seaming and looping yarn for high-grade hosiery, has just been put on the market by Standard-Coosa-Thatcher Co., Chattanooga, Tenn., and Philadelphia.

The new product is made of extra long staple American and Egyptian cottons and is supplied natural and bleached, in a complete range of sizes of this class of yarn. It is wound on 5-in. traverse cones, which have a small base measurement but, on account of the lengthened traverse, will carry more yardage than the ordinary small cone.

▸ Mid-Summer Microscopy Course at M. I. T.

Beginning Wednesday, July 29 the Massachusetts Institute of Technology will offer a course in Textile Microscopy comprising 30 lectures and 45 hours of laboratory. The work extends over six weeks finishing on Sept. 9 with one lecture per day in the morning except Saturdays and with two hours and a half of laboratory on Monday, Wednesday, and Friday afternoons.

The scope of the work includes the practical handling of microscopic equipment of the latest types, particularly those forms specially adapted for textile work.

Preliminary registration has reached the point where there is accommodation for only four more students.

▸ Fair Trade Practices for Mills and Converters

(Continued from page 29)

count exceeds the warp count. In all fabrics the filling count per inch shall not run below the stipulated count throughout the piece.

Weight. A contract should average not more than 1% lighter than the stipulated number of yards to the pound, nor more than 2% heavier. No bale should be more than 1% lighter than the stipulated weight, and no piece should be more than 3% lighter than the stipulated weight. In case of controversy regarding the weight of goods, decision shall be based on goods that have been exposed for 24 hours to normal atmospheric conditions approximating a temperature of 70° F. and a relative humidity of 65%.

Breaking Strength. For specific uses where strength is a prime considera-

tion, the tensile or breaking strength of the fabric must be covered by agreement between the buyer and seller at the time the goods are sold.

The buyer cannot reject goods for delay in delivery unless he notifies the seller prior to shipment or promptly on receipt of invoice if goods are to be held at mill. When the contract calls for delivery in installments, the buyer cannot cancel the contract for default in any one or more installments not amounting to a substantial breach of the contract—40% or over—but he may cancel or replace at seller's expense any installment not delivered within the time specified.

Right of Rejection. The buyer cannot reject goods for defects in quality or for variation from specifications after he cuts or converts them. The rejection of unfinished goods requires that the causes shall amount to a substantial breach of contract; and also that notice shall be given to the seller within 90 days from the receipt of the goods by the buyer or at his finishing works, or within 90 days after date of invoice if goods are invoiced and held at the mill.

Right of Claim. Loss of right to reject does not deprive the buyer of his right to claim damage, if any, including damage caused by latent defects that can be proven conclusively to be the fault of the seller. However, no recovery shall be had on such claims not made within nine months of receipt of goods or from date of invoice if goods are held at the mill.

Goods invoiced and held at the mill subject to the buyer's orders shall be at the buyer's risk but covered by fire insurance effected by the seller in reputable companies. The mills cannot guarantee the solvency of insurance companies. Goods held for more than one year are to be stored and insured at the expense of the buyer.

▸ Code of Practices for Clothing Cotton Converters

The code of business practices of the Clothing Cotton Converters Association, Inc., has been reconsidered by the Federal Trade Commission, with the result that 15 of the resolutions adopted at a trade practice conference of the industry held in March, 1930, have been re-affirmed, with changes in language, and approval has been withdrawn from five resolutions. This was announced by Benjamin Schwartz, trade relations counsel of the Clothing Cotton Converters Association, Inc. The industry must file its acceptance of the changes with the commission, not later than July 29, after which the commission will consider and announce them as the rules of the industry.

Nine rules were placed in Group 1, within the enforcement power of the Federal Trade Commission: Inducing breach of contract; deception in sales; false marking of products; price discrimination; commercial bribery; sales below cost; defamation of competitor; secret rebates, etc.; enticement of employees.

The following rules were placed in Group II, and accepted by the Commission as expressions of the industry: Piracy of designs; repudiation of contracts; arbitration; definition of converter; false invoicing; cost accounting; committee on trade practices.

The Commission declined to approve the following resolutions adopted by the industry: Publication of special quantity price list; guarantee against decline in price; submitting bids after contracts have been awarded to competitor; waiving of interest on overdue accounts, which was condemned by the industry; a resolution approving the sale of goods by sample in preference to count and weight.

The Clothing Cotton Converters Association is composed of merchants who purchase gray goods, finish or convert them for use in the manufacture of men's clothing. Harry Oppenheimer, of Brand & Oppenheimer, New York, is president of the association.

◆

Business News

Reeves Pulley Co. to Open Charlotte Office to Serve Textile Mills

Effective July 15 the Reeves Pulley Co. has established a direct factory branch office at 912 Johnston Bldg., Charlotte, N. C. This branch sales and engineering office will be in charge of D. M. McSpadden, who has had many years experience in connection with the Reeves variable speed transmission. The branch office has been established from the standpoint of more complete service in the southern territory, particularly in the textile industry. The Reeves variable speed transmission is now represented through direct factory branch offices in 12 cities.

Sonoco Products Co. Holds Annual Picnic

Charles W. Coker, president, Sonoco Products Co., Hartsville, S. C., delivered the main address at the annual picnic of Sonoco officials and employees July 4. J. L. Coker, III, executive chairman of committees in charge of the program, delivered the address of welcome. Entertainment features included a carnival, tub race, pie eating contest, music, baseball and dancing.

Represents Terrell Machine Co. in Atlanta Territory

Terrell Machine Co., Charlotte, N. C., recently announced the appointment of W. S. Terrell as sales representative for the States of Georgia, Alabama, Mississippi, Louisiana and Tennessee, with headquarters in Atlanta, Ga.

J. E. Hamilton Now Represents C. E. Craver & Son

J. E. Hamilton, Concord, N. C., who has been associated with Hamilton Machinery Co., Charlotte, for the last five months, is now factory representative of C. E. Craver & Son, Yadkinville, N. C., manufacturers of high grade picker sticks. Mr. Hamilton was an erecting man for the Draper Corp. more than 16 years. He will also deal in weaving room equipment.

▸ Cotton Industry Freight Plans Doomed to Rejection

Neither the so-called Taylor plan, approved by southern shippers, nor the so-called Nuzum proposal, adopted by a group of New England mills, would bring about a revision of freight rates on cotton products, which would be satisfactory to all carriers and shippers, in the opinion of F. M. Ives, traffic expert, who has made a report to the National Association of Cotton Manufacturers following study of the plans.

"Neither of them," he declares, "had or has a chance of being approved by the railroads. The Taylor proposal has been objected to by interests in Texas, in Chicago and in intermediate points like Cleveland. The Nuzum proposal seems to have been unsatisfactory to the southern shippers because of the higher rate level provided for the South than for Official Territory."

The situation existing within the cotton industry on this matter has not disappointed the railroads for the dissension among the shippers, Mr. Ives points out, has permitted the carriers to advance their own proposals.

The entire subject of revision of freight rates was opened up by action, during the spring, of the Interstate Commerce Commission in ordering the southern carriers to correct fourth section violations in the rates on cotton mill products from certain points in the South to points in the Middle West. Changes in the southern rates will bring about revision of rates from points in New England to points in the Middle West and also from the South to points North. Copies of Mr. Ives' report have been sent to the members of the N.A.C.M. rates and transportation committee.

▸ Ajax Hosiery Develops Plan for Employee Training

(Continued from page 33)

apprenticeship training has not kept pace with other progressive tendencies prevalent in industry. It may be because there has been little or less research applied to that particular phase of industry since the popular form of industrial research has generally been applied to methods, materials and machines. We still are inclined to train our help after the same general pattern that was in vogue a century ago. One reason for the slow development of modern training is no doubt due to a lack of tangible evidence of its importance. Also, plant managers have feared to turn their psychology into many new fields at one time.

Industrialists were mostly engineers of excellent training in the sciences of materials and machines but what they knew of human relations was learned only through experience or accident.

Needless to say, they have had little confidence in pedagogical-minded people. The attitude has changed somewhat with the injection of industrial education into public education; the ties are more tangible.

The trade school graduate, although he has acquired a thorough background in a particular trade, is not able to step into a shop in a new organization and immediately become as satisfactory as if he had been trained and acquainted with his new affiliation previously. In most cases he would receive recognition sooner than the candidate who had no special training whatever, but he has to be re-trained to some extent before he is a perfect fit. A direct tie-up between our public vocational education and industry would seem most legitimate.

FOREMANSHIP TRAINING

The hosiery industry like all other industries has been constantly increasing the complexity of its equipment. The foreman is continually getting a greater responsibility. He is selected for his outstanding skill and other general abilities and apparent capacities demonstrated while practicing the craft. It would be an exceptional case where, within the confines of his specialization, he had learned the broader responsibilities of foremanship. Here again is a significant feature of centralized training. Of course he may gain much from the association with other foremen, but that is the line of least resistance. It does not lead him in any definite direction. It does not definitely lay out a program which may be held to in detail. It is becoming more and more evident daily that all human effort must be guided to the straight-way so that there will be the minimum time and energy lost between the start and full steam ahead. There is too much unconquered territory to spend time trying things which already have been proved mistakes by somebody else.

Foremanship training is only another part of the training program but one of outstanding importance because:

(1) It provides the foreman with a very suitable opportunity to grow.

(2) It assists him in gaining the proper balance in weighing his responsibilities.

(3) It brings him up to date in the most adaptable and fundamental principles of learning and accepted practices of teaching.

(4) It develops a keener realization of the importance of cooperation between departments.

(5) It provides a closer understanding between the management and the men.

The progressive industrialist today realizes that his most satisfied, most intelligent and best trained employees from the top down are the most valuable. They are better citizens and factors in higher living standards. Higher living standards are one of the great bids for general industrial prosperity.

▶ National Silk Dyeing Co. Shows Models at Style Show

National Silk Dyeing Co.'s participation in the fall style show of the Garment Retailers of America on July 14 at the Astor Hotel, New York, gives new evidence of cooperation between various branches of the textile industry in promotional work. With its customers, the dyeing company exhibited four unusual costumes, the processing of the fabric in each case being done by National.

In the group was an evening gown, created by Garfinkel & Siegle, a copy of Patou, in Stunzi's peach crepe satin Suiza. Another exhibit was an afternoon frock of Haas Brothers' Chunda Superior, from Harry Rubin, in lime green, with cuffs of black galyac.

National exhibited also a formal afternoon gown in the second-empire style, made up by Kallman & Cohn in rust crepe romain Decandria from the Onondago Silk Co. Stehli's Delecta satin appeared in a black and white afternoon gown with separate jacket made by Bruck-Weiss.

New Books

ELEMENTARY TEXTILE MICROSCOPY. By John H. Skinkle, S.B.; Howes Publishing Co., New York. 134 pages. Illustrated.

In this book Mr. Skinkle has attempted to condense the subject of textile microscopy for the purpose of class instruction and for the use of those men who desire a general, working knowledge of the subject.

The book consists of eight divisions, including a short series of laboratory experiments. The first section, entitled "Apparatus," describes the various types of microscopes and the apparatus connected with them. "Methods," the second division, describes the various types of mounts and the media in which the fiber is placed. "Identification" deals with the methods of distinguishing between the different types of starches, natural fibers, and rayons. "Low-Power Microscopy," "Photomicroscopy," and "Laboratory Experiments" are self-explanatory.

The appendix consists of some fifteen tables relative to the microscope, its accessories, and various textile fibers.

JUTE AND LINEN WEAVING. Part II. Calculations and Structure of Fabrics. Thomas Woodhouse, F.T.I., and Thomas Milne. Macmillan & Co., Ltd., St. Martin's St., London. 200 pages. Illustrated.

Calculations relative to practically all phases of jute and linen weaving are contained in this volume. Some of the topic headings are: Yarn Counts; Twisted Threads; Warp and Weft Setts and Porters; Warping Calculations; Analysis of Fabrics; and Yarn Diameters and Their Structural Values. An important section of this publication is that which relates to the determination of yarn and fabric costs.

THE LEEDS WOOLEN INDUSTRY: 1780-1820; Edited by W. B. Crump, Leeds, England; The Thoresby Society; Price, 16 shillings.

Diaries and other papers of British woolen pioneers have been assembled by Mr. Crump, and their significance is explained in a general introduction by the editor. The anecdotal material reflects the human side of the woolen industry during its earliest days in Leeds. Woolen merchandisers and technicians alike will find much to instruct, as well as entertain them, in these pages.

Illustrations, showing layouts of these old mills, portraits of the owners, and scenes in the plants, add much to the value of the volume.

Business Literature

Roller Chains. Diamond Chain & Mfg. Co., Indianapolis. Booklet explains "eight points" where Diamond drives appeal to machinery designers.

Spinning. Whitin Machine Works, Whitinsville, Mass. Detailed description of modern Whitin line of cotton spinning frames.

Electrical Equipment. Square D Co., Detroit, Mich. Tendencies in switchboard development, with particular relation to Square D dead front switchobards, reviewed in booklet.

Condulets. Crouse-Hinds Co., Syracuse, N. Y. Lists specifications of line of threadless condulets, couplings and connectors; also contains iomplete number index of firm's catalogs.

Controller Equipment. The Bristol Co., Waterbury, Conn. Catalog No. 4000, accessories section, gives detailed descriptions and specifications of air operated controller equipment.

Brown Instrument Co. Catalogs. The Brown Instrument Co., Philadelphia, Pa. Three new catalogs give descriptions and specifications of this firm's line of electric CO_2 meters, tachometers and electric flow meters.

Electrical Equipment. Crouse-Hinds Co., Syracuse, N. Y. Safety circuits for electrical equipment described in eight-page folder.

Vulcanized Fiber. Continental-Diamond Fibre Co., Newark, Del. Fiber products of this company illustrated and described in catalog.

Control Equipment. Brooke Engineering Co., Inc., Philadelphia, Pa. Twelve-page folder depicts operations of Brooke equipment in series of charts.

Sewing Machines. Union Special Machine Co., Chicago. Evolution of industrial sewing machine, 1881 to 1931, shown in February issue of "Sales Bulletin," which also contains articles on production and cost control and manufacturing.

Nickel Equipment. International Nickel Co., of Canada, Ltd., Copper Cliff, Ont. New issue of "Inco," describes completion of seven-year program of developing this company's Canadian properties.

Fuel and Steam Machinery. Combustion Engineering Corp., New York, N. Y. Various types of boilers described and illustrated, with specifications; also generators, furnaces and other equipment.

Pressure Gages. Foxboro Co., Foxboro, Mass. Function of gage and its relation to other equipment, explained.

Photomicrography. Armion Textile Corp., Hoboken, N. J. Folder announces new photomicrograph, and shows sample photographs of textile fibers.

Gears. Link-Belt Co., Chicago. Construction, characteristics and uses of new P.I.V. gear, a variable speed transmission, explained in illustrated booklet.

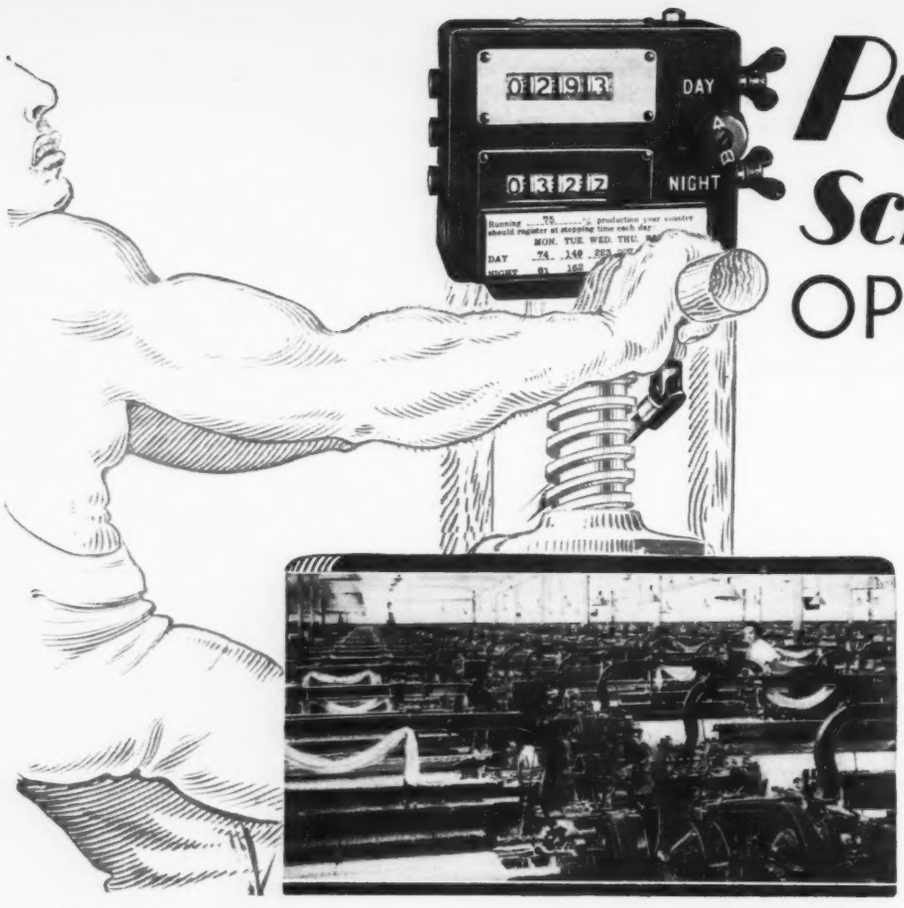
Industrial Paints. The Sherwin-Williams Co., Cleveland, O. Folder tells "story of paint standardization" in plants of The Kendall Co., and relation of color to worker efficiency.

Weaving. The Stafford Co., Readville, Mass. Describes how maximum output can be achieved in weaving rayons by use of Stafford equipment.

Spooling and Warping. Barber-Colman, Co., Rockford, Ill. Catalog made of cotton fabric, considers relation of equipment to production in spooling and warping, stressing advantages of Barber-Colman high speed warpers and automatic spooler spindles.

Pumps. Allis-Chalmers Mfg. Co., Milwaukee, Wis. Type "SSU" centrifugal pumping units described in folder which also gives specifications and shows charts.

Looms. Crompton & Knowles Loom Works, Worcester, Mass. "Loom-inary" explains advantages of firm's new loom equipment, stressing lower maintenance cost and higher speed.



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